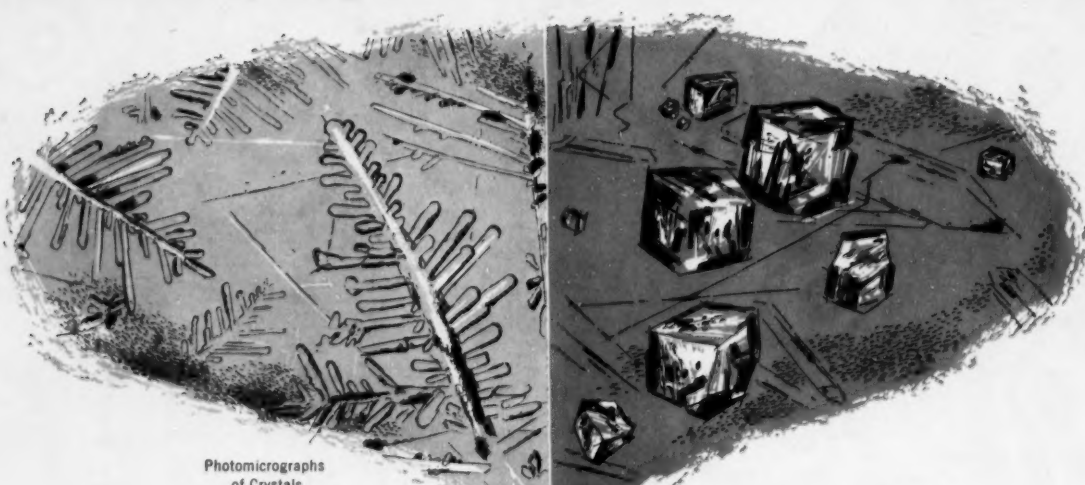


COMMERCIAL FERTILIZER

CONSOLIDATED
WITH THE
FERTILIZER
GREEN
BOOK



Photomicrographs
of Crystals

How URANA* solutions reduce caking and secondary bag set

Arcadian

PRODUCTS FOR
PROFITABLE FARMING

Nitrogen Solutions
(Nitrona® and Urana*)

AMERICAN
Nitrate of Soda

A-N-L®
Nitrogen Fertilizer

Urea Products

Sulphate of Ammonia

The usual mixed fertilizers contain ammonium chloride salts resulting from reaction of ammonium salts with potassium chloride. These fern-like or needle-shaped crystals tend to bind together, causing caking of the fertilizer at the factory and in the bag.

When URANA 15 (15% Urea) or URANA 9 (9.25% Urea) Solution is used in ammoniation, the urea makes the ammonium chloride form cube-like crystals, with much less binding effect. This means less caking and set, better fertilizer condition, and often a reduction in costs.

This is only one of several advantages obtained from ammoniating with URANA Solutions. For other important aids developed through Nitrogen Division research, consult one of our technical servicemen. Their help is free to our customers.

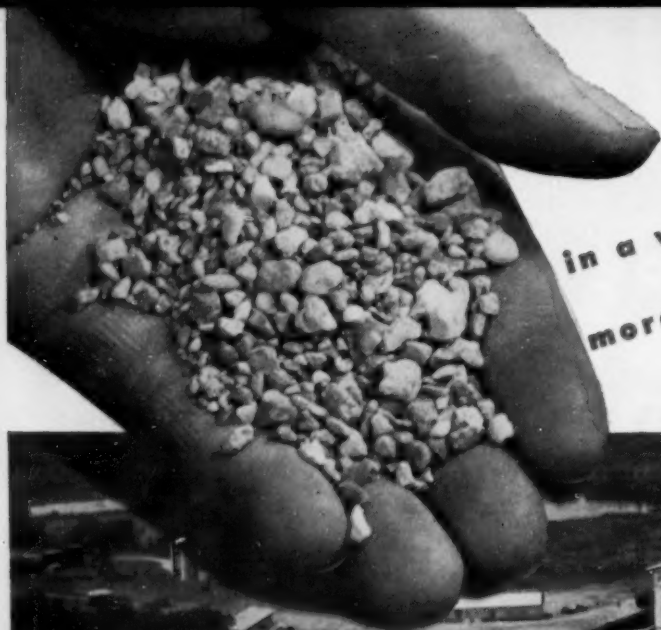
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NITROGEN DIVISION Allied Chemical & Dye Corporation

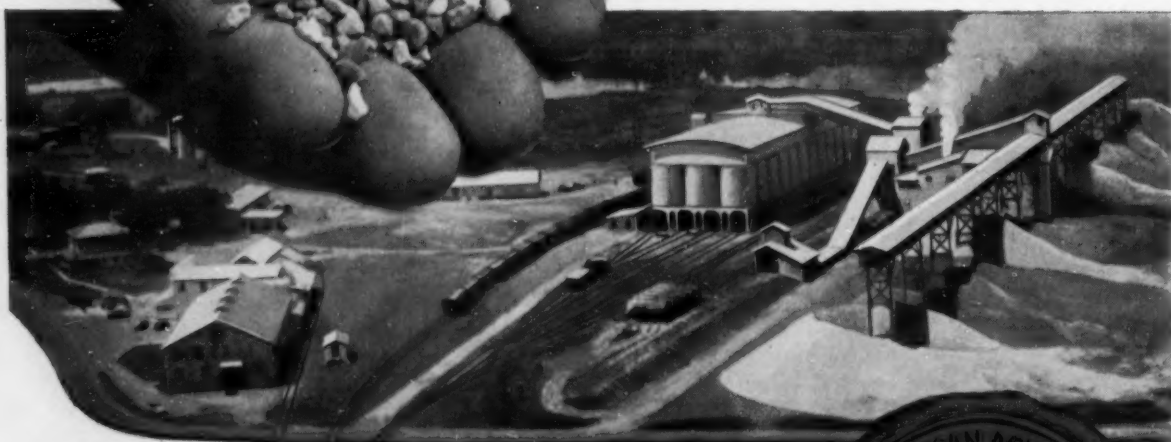


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MAY, 1954



*in a way...
more precious than gold!*



Air view showing dryers and rock storage at Pierce, Florida, headquarters of A.A.C. phosphate mining operations. (Top) Sample of Florida Pebble Phosphate Rock, source of phosphorus widely used in the chemical industries, in its elemental form as well as in phosphoric acid, phosphates and phosphorus compounds. **Q** This pebble rock is also the principal source of the most important—and most generally deficient—plant food element. Often called the Key to Life, phosphorus is essential in maintaining and improving crop yields. Health, growth, life itself, would be impossible without phosphorus . . . so in a way these phosphate pebbles are more precious than gold.



AA Quality...

for over 85 years a symbol of quality and reliability

principal AA QUALITY products

All grades of Florida Pebble Phosphate Rock	AA QUALITY Ground Phosphate Rock
All grades of Complete Fertilizers	Superphosphate
Gelatin	Bone Products
Salt Cake	Ammonium Carbonate
Sulphuric Acid	Fluosilicates
Insecticides and Fungicides	
Phosphoric Acid and Phosphates	Phosphorus and Compounds of Phosphorus

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GENERAL OFFICE: 50 CHURCH STREET, NEW YORK 7, N. Y.

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Your business as a fertilizer manufacturer grows best when the farmer's crops grow best. And the growth of both is stimulated by the same outstanding Fertilizer ingredient . . . Organic Nitrogen.

There is no better source of Organic Nitrogen than SMIROW TANKAGE. It is 100% natural organic. It is consistently high in water insolubility and availability, testing approximately 90%. SMIROW TANKAGE is uniform both in color and texture.

The sure way to make your sales grow is to see that correct proportions of SMIROW TANKAGE assure the top quality that farmers seek in your goods.

- We will gladly send samples and prices.



**SMIROW
TANKAGE**

MAKES PLANTS GROW



SMITH-ROWLAND COMPANY

NORFOLK, VIRGINIA



CHEMICAL, ILLINOIS

COMMERCIAL FERTILIZER

ESTABLISHED 1910

May, 1954

Volume 88 No. 5

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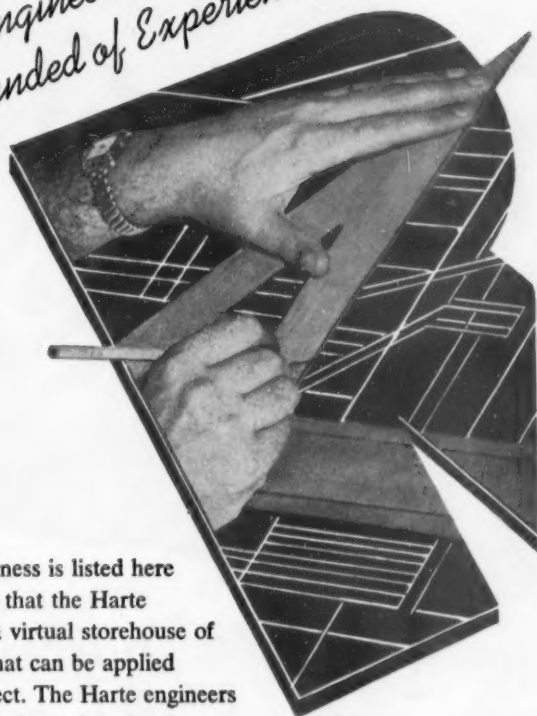
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COMMERCIAL FERTILIZER

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Compounded of Experience*



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- STORAGE BUILDINGS
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May, 1954



Rugged NEW **S**HOVELoader mechanizes bulk handling for only \$3395⁰⁰*

For LESS than \$10.00 a day for one year . . . much less than you pay a laborer with a hand shovel . . . you can own a Baker-Lull 12 cubic foot SHOVELoader. And you get a lot more for the money!

Check all of these features and see why this SHOVELoader compares with others costing \$350 to \$400 more. The lift height is a tall seven feet with lifting capacity a husky 1500 pounds . . . 500 pounds more than most competitive units. The loader arms are located out in front of the operator—not around him—to keep him safe from injury and give him clear-view visibility at all times. The bucket can be cradled low too, giving

him unobstructed forward visibility and making it unnecessary to drive backward as with other units. Maximum travel speed is 14 MPH. Plenty of bucket tilt back at ground level makes it easy to get a full bucket every time from stockpiles . . . letting you reduce handling costs by moving more bulk in a shorter time.

Attachments let you do more types of work too. Lift forks let you handle palletized loads, the crane hook gives you a portable hoist, and special buckets are available for handling dense materials. Exhaust-destroying catalytic equipment is also available for indoor use where necessary.

Baker-Lull SHOVELoaders are available in sizes ranging from 12 cubic feet to 1½ cubic yards four wheel drive. Should you desire information on other sizes please specify when writing. The BAKER-LULL Corporation, 406 West 90th Street, Minneapolis 20, Minn.

*F.O.B. Minneapolis

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Please send full information on the Baker-Lull, Model 20, 12 cu. ft. SHOVELoader which sells for only \$3395.00.

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Sterox *AJ, Monsanto's wetting agent that's stable and soluble in your processing acids, can bring you three money-making advantages in superphosphate production:

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crumbly, homogeneous,
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use of 60° Baume acid eliminates
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for maintenance, since mixer and
den are cleaner.

*For improved
mixed goods use . . .*

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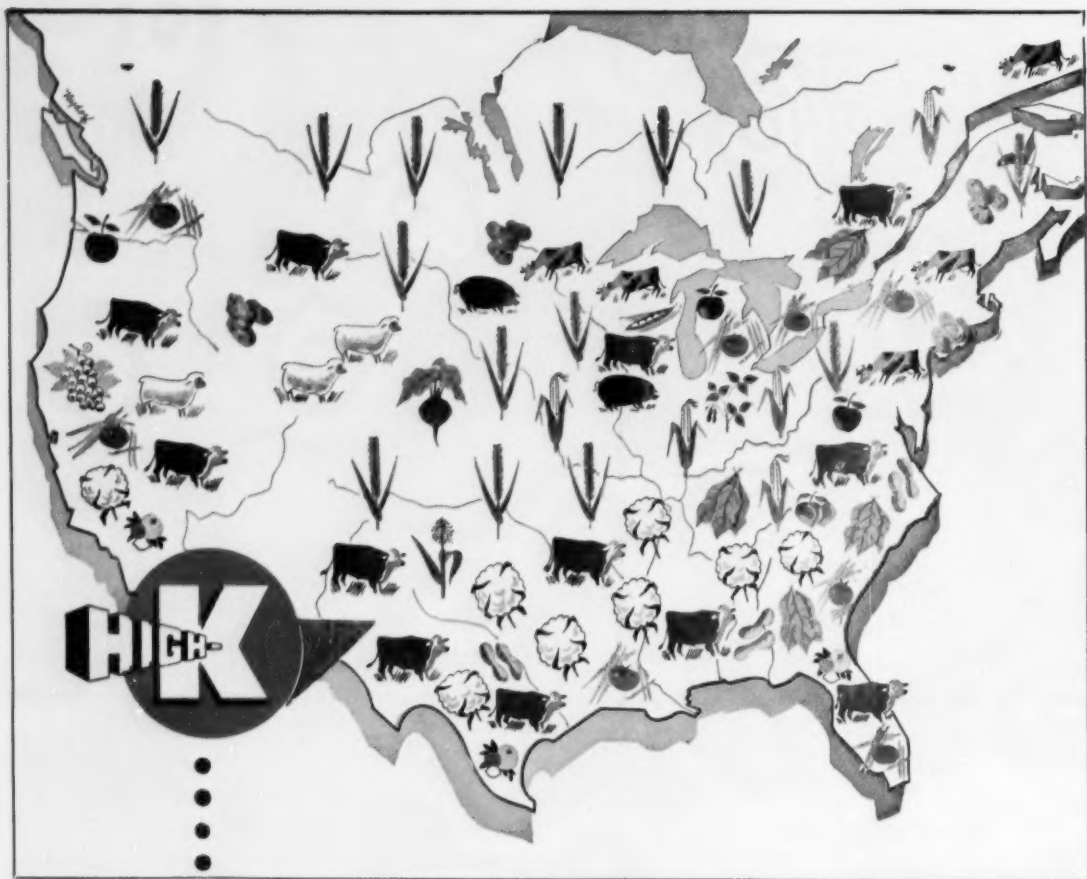
*Reduces lumping and caking
Cuts curing time
Increases reaction*



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Southwest **serves agriculture**

...by using modern mining facilities and
up-to-date processes to produce **HIGH-K*** Muriate
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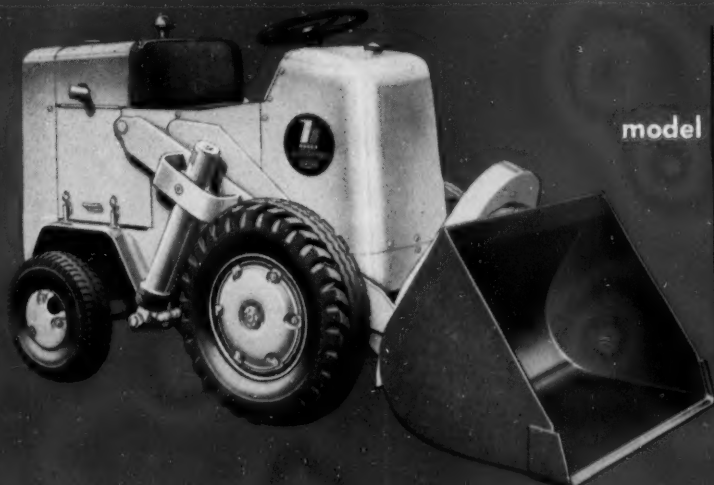
Southwest Potash Corporation



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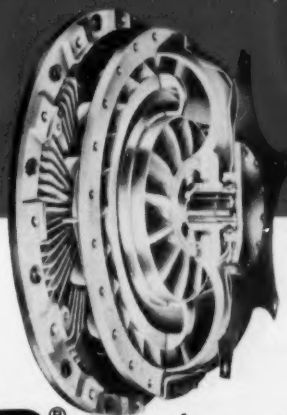
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NEW YORK 6, N. Y.



model **HAC**

(CAPACITY: 16 cu. ft. Payload;
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Torque-converter drive now
standard. Gas or diesel.



New Torque Converters *boost **PAYLOADER**® output*

For faster, more economical fertilizer-handling

Here's good news to the users of "Payloaders" shovel-loaders. These two popular "Payloaders" now include torque-converter drive as standard equipment! Extensive testing of both models shows that new peaks of performance are provided. Prove to yourself that these two famous "Payloaders" are still the finest tractor-shovels in their class. Ask your "Payloader" Distributor for a demonstration, or write The Frank G. Hough Co., 702 Sunnyside Avenue, Libertyville, Illinois.

Greater Output — because machines operate at highest speed in relation to load.

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YOU CAN'T COMPETE IF YOUR EQUIPMENT IS OBSOLETE!



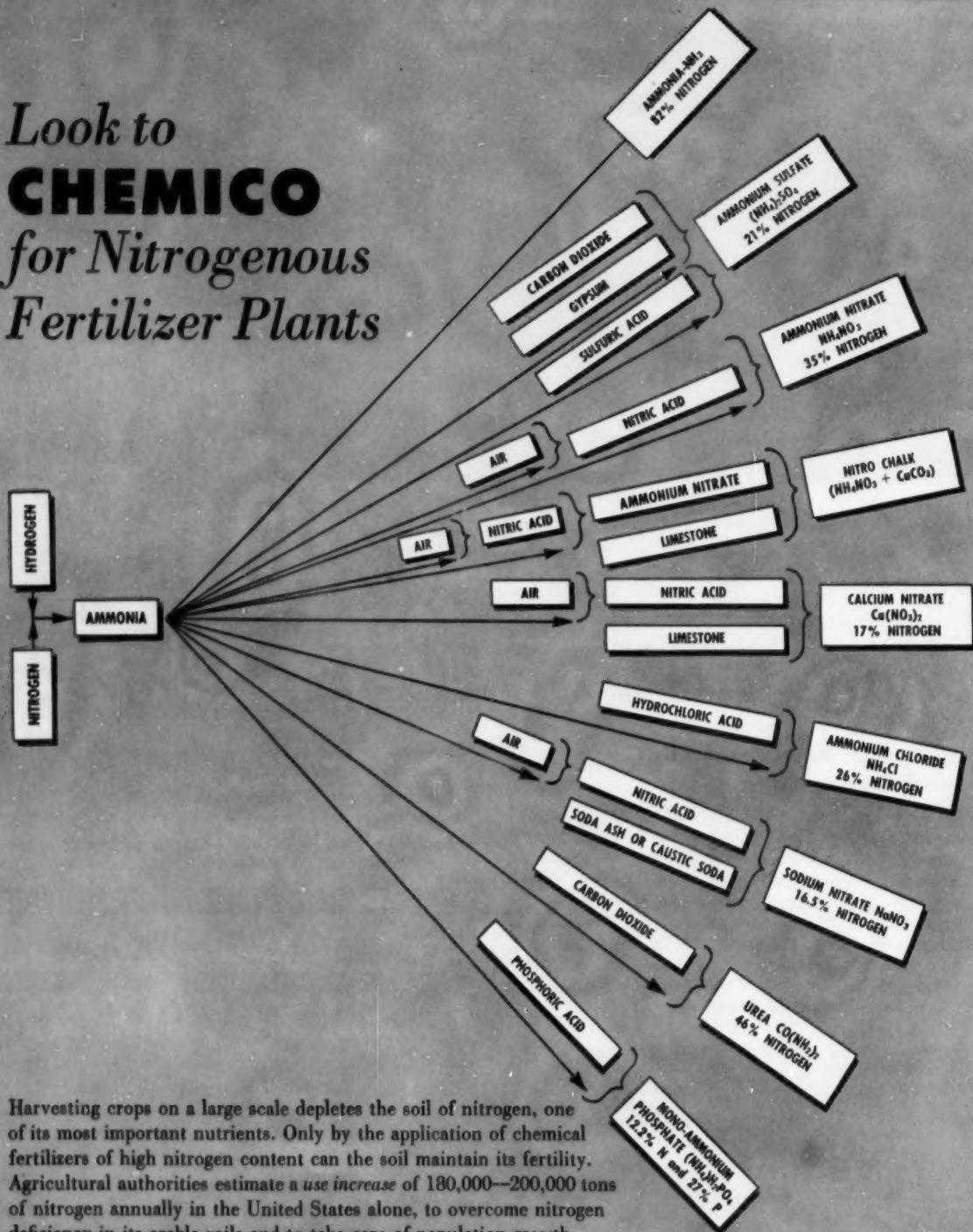
PAYLOADER®
THE FRANK G. HOUGH CO. - Since 1939



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(CAPACITY: 24 cu. ft. Payload;
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Torque-converter drive and
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Look to **CHEMICO** for Nitrogenous Fertilizer Plants



Harvesting crops on a large scale depletes the soil of nitrogen, one of its most important nutrients. Only by the application of chemical fertilizers of high nitrogen content can the soil maintain its fertility. Agricultural authorities estimate a use increase of 180,000—200,000 tons of nitrogen annually in the United States alone, to overcome nitrogen deficiency in its arable soils and to take care of population growth.

The Chemico organization is specially qualified to design and construct plants for the production of ammonia and nitrogenous fertilizers of all types. It offers a world-wide service backed by 40 years of experience.

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Chemico plants
are profitable
investments



JUST AROUND THE CORNER

By Vernon Mount



DEMOCRACY vs DICTATORSHIP operates under a handicap. When a duly representative Russian makes a statement, he knows his government can back him to the hilt. But the representative of a republic must go back to Congress, and they go back to the people. His opponents know this, and know it well.

ON INDO-CHINA the Administration built up a tough position. We would send troops if need be. We simply would not permit Indo-China to fall. It was the last bastion of Soviet containment. But when the Vice-President mentioned the sending of troops the uproar was deafening. It could have been heard in Russia, even without benefit of their staff in this country.

DULLES' TRADING POSITION was virtually washed out just before Geneva. My crystal ball does not say what will follow. My reason says Communism will be able to consolidate more gains in the Orient, exploit the rich resources there as a springboard for more attrition...and finally, unless the rest of the world awakes soon, be strong enough to face all the rest of us in open, full-scale warfare.

Yours faithfully,

Vernon Mount

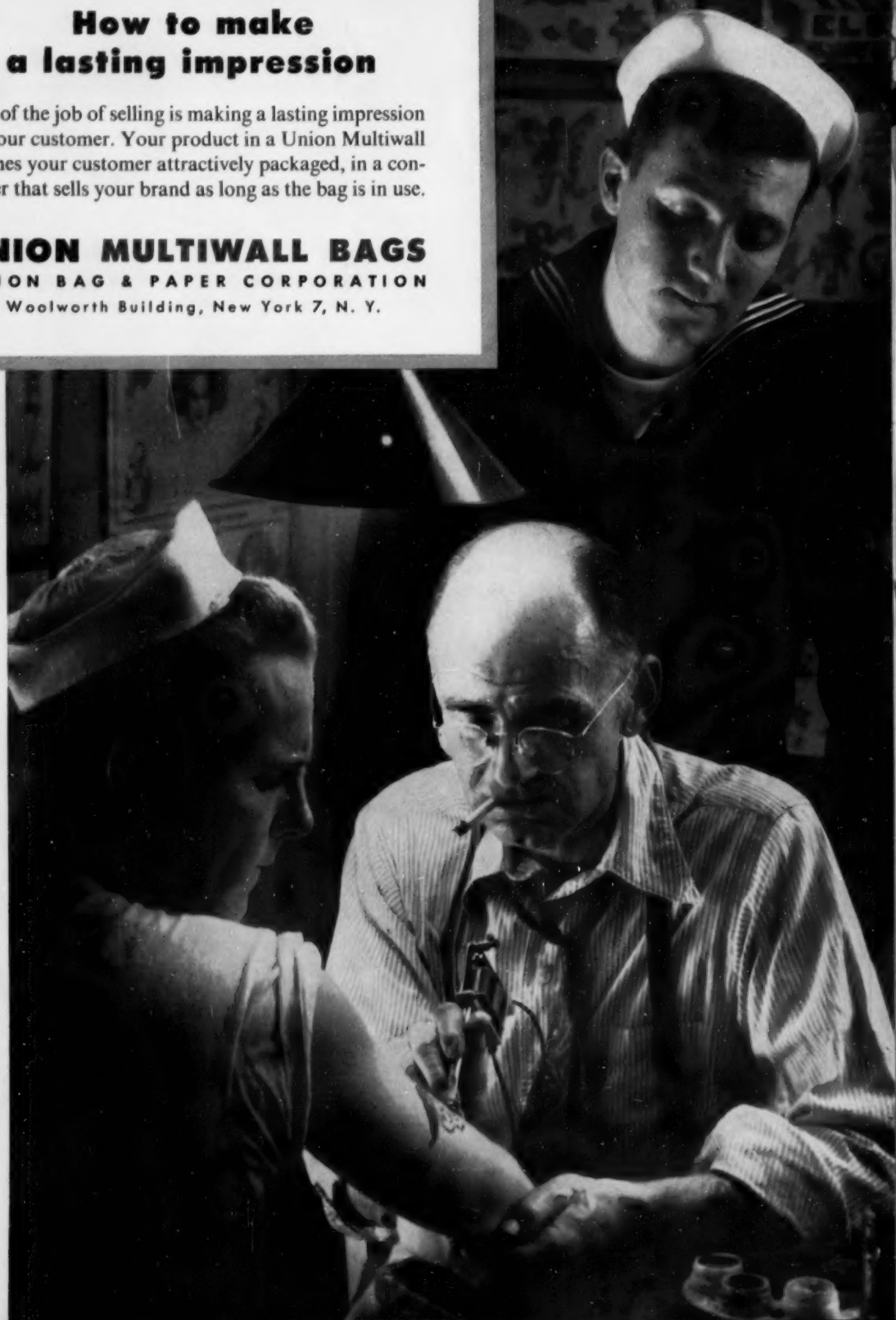
How to make a lasting impression

Part of the job of selling is making a lasting impression on your customer. Your product in a Union Multiwall reaches your customer attractively packaged, in a container that sells your brand as long as the bag is in use.

UNION MULTIWALL BAGS

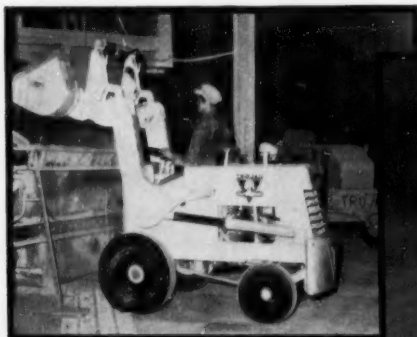
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Trojan Loadsters are ... **MAN-HOUR SAVERS!**

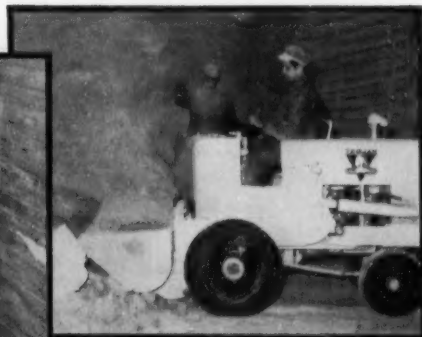
Production moves **FAST** with the multi-purpose Trojan Loadster Model LA-40. The LA-40 handles **ALL** kinds of bulk material in **ALL** kinds of plants. Whether loading or unloading, the LA-40 delivers the goods fast, using a minimum of working space (turns in a 6'6" radius). Model LA-40 travels fast too, with its low load carrying position, giving you "more tonnage per day."



Here's complete safety with Model LA-40 dumping into hopper.



Model LA-40 Unloading Boxcar with room to spare.



Model LA-40 Digging cured material for bagging.

exclusive **BIG 3** features:

1 Reverse curve arms* for safety!

Even when the bucket is fully raised, constant 360° vision and complete safety for your operator is maintained.

(*U.S. Pat. 2,645,369)

2 Low load carrying position!

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3 Independent bucket action!

Just flipping the bucket closed, this operator gets a full load everytime. Trojan's independent bucket action pries loose hard packed material, too.

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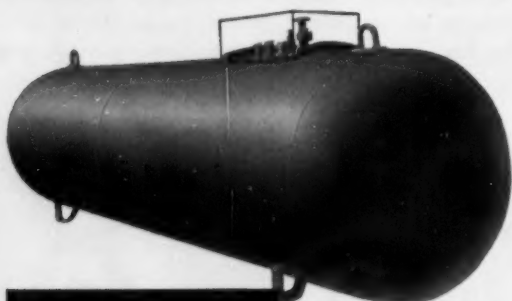
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ADDRESS _____

CITY _____ STATE _____

CHARLOTTE
DUO-TESTED
Anhydrous Ammonia Tanks



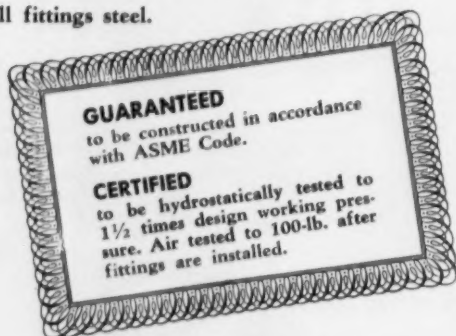
*For storage
application
and transport*

Charlotte Anhydrous Ammonia Tanks are of all-steel welded construction — 265-lb. design working pressure, UW-52, ASME Code.

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(crystals, prills or solution)
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plants
- Ammonium Sulfate plants
- Other Nitrogen Fertilizers
plants
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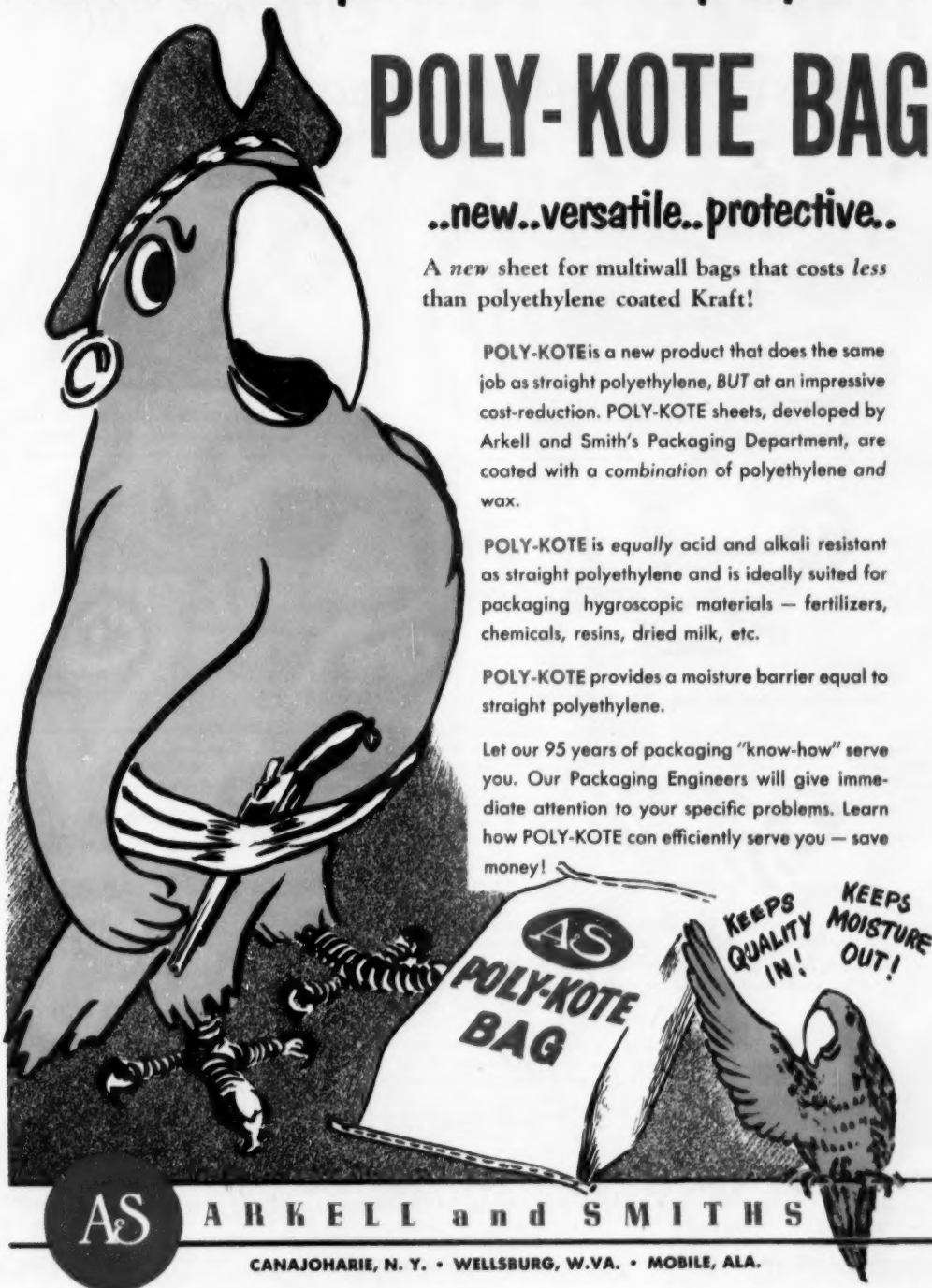
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Let our 95 years of packaging "know-how" serve you. Our Packaging Engineers will give immediate attention to your specific problems. Learn how POLY-KOTE can efficiently serve you — save money!



AQUAFIL! Offers You...

✓ BIGGEST SUPPLY ✓ BEST QUALITY
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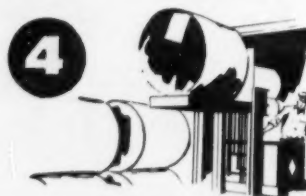
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CONDITIONING AGENT FOR COMMERCIAL FERTILIZER—Aquafil is the product stabilizer that ends caking in the bag.



2
DILUENT FOR INSECTICIDES—With Aquafil you get high concentration which means savings.



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5
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Fineness: 95.3% through 325 mesh.

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COMMERCIAL FERTILIZER





Phillips supplies **NITROGEN** in 4 forms

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New Premium Quality Phillips 66 Ammonium Sulfate is available *now*! It's *dry*-cured to remove excess moisture—prevent caking. Uniform, dust-free crystals flow freely—mix easily. Contains 21% nitrogen, ideal for all analyses of mixed goods and for direct application to all farm crops. Contact us now for your requirements.

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3 NITROGEN SOLUTIONS

Get more N per dollar! Phillips 66 Nitrogen Solutions are well suited to the preparation of high-analysis fertilizers and the ammoniation of superphosphate. These three nitrogen solutions keep handling costs low! Promote rapid, thorough curing!

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Phillips 66 Prilled Ammonium Nitrate contains 33% nitrogen. The small, coated prills or pellets resist caking . . . handle easily. Depend on Phillips 66 Prilled Ammonium Nitrate for uniform, free-flowing properties and top-notch crop response.

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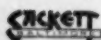


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You Need

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- ★ PLANT MODERNIZATION PROGRAMS
- ★ CONTINUOUS AMMONIATION UNITS
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ITEMS FROM THE FERTILIZER FIELD

Recently the City of Cleveland, Ohio, 100-year Club held a luncheon honoring four concerns which have been in business in Cleveland a century or more . . . and one of them was Stadler Fertilizer.

* * * *

Steve Turner, who sells seeds and fertilizers and does custom cleaning for the agriculturalists around about Pontiac, Illinois, has a Pacemaker's Club with 23 communities organized. (He explains that's all the communities there are in his area) The Pacemakers grow corn competitively. 84 have definitely enrolled and 50 cooperator soil tests have been made. They hold regular monthly meetings and have such speakers as April 8, Howard Lathrope* of Allied Chemical and Dye; May 13, E. H. Tyner, University of Illinois; June 10, G. N. Hoffer, American Potash Institute; August 12, M. B. Russell, University of Illinois; September 9, K. C. Berger, University of Wisconsin; October 14, Leonard R. Kyle, University of Illinois.

Their theme is Howard Lathrope's philosophy: "Beaten paths are for beaten men. We are always looking for the new. We are not afraid to look over the horizon because we might find some wild Indians."

We'd like to meet Howard Lathrope, who is known in that part of the country as "Mr. Nitrogen" and who believes that a good example is better than good advice.

Incidentally, we know NFA must be pleased about all this because Pacemakers are raising 100 bushels to the acre . . . these were the Wisconsin variety of Pacemaker, from which the Steve Turner brand is patterned. If you're up that way on any of the dates mentioned, the Pacemakers meet at Moose Home in Pontiac at 7:30 P.M. You'll find there not only farmers, but the county bankers, the president of the local Soil Conservation group and the local Farm Advisor.

* See personals.

* * * *

When the City Council of Dallas, Texas, met recently, on their docket was the passage of a budget of \$3,500 to pay for a pigmy hippo, owned by North Atlantic Fertilizer & Chemical Company. What N.A.F.&C.C. was doing with a pigmy hippo we do not know as we go to press, but you may be very sure we are making every effort to find out.

* * *

More than 100 residents of the Rogers Park area of Lubbock, Texas, petitioned their City Commission to remove the fertilizer, a product of the community's own disposal plant, from the park because it "permeates the neighborhood with an objectionable odor and that dust from the substance is blown into their homes. The City Commission hastened to work it into the soil.

INDUSTRY CALENDAR

Date	Organization	Place	City	State
May 21	Va. Safety	Roughton Pontiac Hall	No-folk	Va.
June 10-12	APFC	Homestead	Hot Springs	Va.
June 14-16	NFA	Greenbrier	White Sulphur	W. Va.
July 1-5	Canadian	Manoir Richelieu	Murray Bay	Quebec
July 20-22	Pacific Conference	Klawath Falls AES		Oregon
Oct. 18-19	Fertilizer Section	LaSalle Hotel	Chicago	Ill.
Nov. 8-12	Crop, Soil	St. Paul Hotel	St. Paul	Minn.
Nov. 10-12	NFA	Hollywood Beach Hotel	Hollywood	Fla.
Nov. 15-16	CFA	del Coronado Hotel	Co-enado	Cal.
Dec. 2-3	Cotton Insect	Adolphus	Dallas	Texas

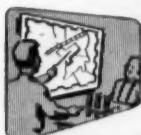
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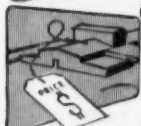
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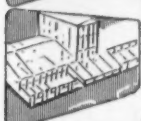
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4 Building Construction

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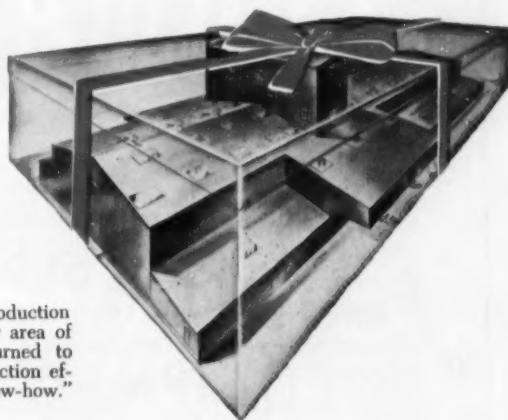
6 Guaranteed Performance

We guarantee the operating performance of the complete project both from a standpoint of hourly capacities as well as manufacturing costs covering each operational phase involved. In most every case, these guarantees are exceeded by a safe margin. Should deficiencies develop, prompt corrective measures are taken at our expense.



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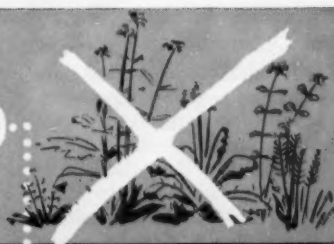
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TRONABOR^{*} is a new concentrated borate weed killer containing not less than 13.7% Boron and 44% B₂O₃, combining the properties of a general-contact weed killer and soil sterilant. **TRONABOR** is most effective when applied dry but can also be used in solution as a spray. When you use **TRONABOR** the job is done! Most weed growth is destroyed for a year or longer. Under favorable conditions **TRONABOR** may give control up to three or four years. When applied before or during seasonal rainfall it is dissolved and permeates the soil to the root zone of the plants where it destroys and prevents re-growth until removed by normal leaching. **TRONABOR** is safe, easy to apply, non-corrosive and non-flammable. No other type of weed killer combines so many advantages.

HOW AND WHEN TO APPLY TRONABOR^{*}

In dry form, **TRONABOR** is easily applied by hand-broadcasting. On larger areas one of several available types of fertilizer or lime-spreaders is recommended. It should be distributed evenly and in sufficient amount. It is better to over- than under-apply, since too little may give unsatisfactory results. Where practical, standing weed growth should be cut to a height of 4 to 6 inches to insure that the **TRONABOR** is spread evenly. On bare slopes raking in will prevent the material from washing away during heavy rains.

TRONABOR is best applied in the Fall, Winter or early Spring when rainfall

carries it into the root area of the soil. **TRONABOR** must be dissolved to be effective. For annuals and shallow-rooted perennials apply when plants are young and tender. Deep-rooted perennials should be treated in Fall or Winter. Apply **TRONABOR** at the rate of 7½ to 11 pounds per 100 square feet, depending upon severity of conditions. The higher application should be used on steep slopes, where weed growth is thickly matted or well established, or where the soil is hard and impervious or very sandy or porous. Spot retreatment of some areas at about ½ the above dosages may be advisable later.

^{*}Trade Mark Registered



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Concentrated
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Non-corrosive to
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Non-injurious to
clothing
Economical
Soil Sterilant

TRONABOR KILLS..

Russian Knapweed
Canada Thistle
Bindweed
Toad Flax
Leafy Spurge
Whitetop (Hoary Cress)
Johnson Grass
Poison Ivy and Oak
St. Johnswort
(Klamath Weed)
And many others.

Government Working Up Farm Export Markets

The problem of overhanging stockpiles of farm products, together with growing surplus totals is getting sharp attention from the Eisenhower administration. To the existing carryover we are likely to add this year some 200,000,000 bushels of wheat and two million bales of cotton, even though acreage cuts are expected in both commodities. 250,000,000 bushels of corn and other feed grains and half a billion in other commodities are all expected to stack up on top of the present \$7,000,000,000 of government surplus holdings, bringing them up around \$10,000,000,000.

Abroad they are afraid we will dump these holdings, and an international conference last month suggested gently that they set up a permanent committee on disposal of farm surplus. But the Administration's emphasis is on selling these commodities, and a number of missions have been set up to visit some 40 foreign countries, to open the way for private enterprise to follow up when the present road blocks to exports have been cleared away or at least softened up.

They will negotiate no contracts, make no sales—they are missionaries in the truest sense. Each party will report back to Secretary Benson on the conditions found, and from these reports, data will be made available to business in the US.

An idea of the balanced character of the missions may be gained from this list of their membership:

Mission to Europe

Northern Europe

Head: F. R. Wilcox, assistant general manager of Sunkist Growers, Los Angeles, Calif., and former director of the Department's Foreign Agricultural Service.

Executive Secretary: Horace G. Bolster, member of the Department's Foreign Agricultural Service and former U. S. agricultural attache in the Netherlands and Iran.

Members:

Berry Akers, editor-in-chief, The Farmer, St. Paul, Minn.

It Seems to Me

by BRUCE MORAN



Straws in the wind often tell more than weighty pronouncements. In the midst of nail-biting about business conditions, I noted the other day a survey of the hundreds of new golf-courses that are being planned and built right now in this country. They are not being built to occupy the time of the unemployed. They cost money to build and to run, and the money is not coming from any depressed economy.

They are an expression of faith in the future of the USA and of the localities where they are being created.

And as an afterthought, but one not to be missed here . . . think of all the fertilizer needed for those courses, to keep the greens and the fairways in the shape to which America's golfers have long been accustomed.

We worry too much in this country. A look at one of those long graphs that dates back to the Civil War or so is always reassuring. There are dips in the curve, and peaks, too. But on the whole it represents the steady upward progress which has brought the US to be the most powerful nation in the world, and the richest.

J. B. Hutson, president of Tobacco Associates, Washington, D. C., and member of the USDA Advisory Committee on Foreign Trade and Technical Assistance.

James Klahre, general manager of the Apple Growers Association, Hood River, Ore.

Chris Milius, president of the Nebraska Farmers Union, Omaha, Nebr., and member of the National Agricultural Advisory Commission.

Ben Namm, president of Namm-Loeser's Department Store, Inc., Brooklyn, N. Y.

George M. Strayer, executive secretary of the American Soybean Association, Hudson, Iowa.

Southern Europe

Head: N. I. Nielson, Federal-State statistician for agricultural estimates with the Agricultural Marketing Service, Portland, Ore., and former U. S. agricultural attache in Paris.

Executive Secretary: James O. Howard, member of the Department's Foreign Agricultural Service and former U. S. agricultural attache in Portugal.

Members:

B. F. Beach, secretary of the Michigan Milk Producers Association, Adrian, Mich.

John Bird, associate editor of Country Gentleman Magazine, Philadelphia, Pa.

W. Rhea Blake, executive vice president of the National Cotton Council, Memphis.

Guy Jossierand, wheat and livestock farmer, Dodge City, Kan.

James J. Love, tobacco and livestock farmer of Quincy, Fla.

Henry E. Miller, vice president of the Kirby Block Co., New York, N. Y.

W. R. Ogg, director of international affairs for the American Farm
(Continued on page 35)

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"The discussion of denitrification in this paper will be of direct interest to many agricultural workers in this country who are interested in the direct application of ammonia and also in the activity of solid ammonium compounds to the soil." So wrote Dr. Vincent Sauchelli, Director of Agricultural Research, Davison Chemical, who supplied us with the text, which was released through him for publication by the International Superphosphate Manufacturers Association, Paris.

WHAT HAPPENS TO THE AMMONIA

In addition to the comprehensive field experiments which are carried out at the National Agricultural Research Centre certain chemical and biological laboratory researches have also been performed in recent years. These researches have been intended to complete and to interpret to some extent the experiment results obtained in the field experiments. In these researches the use of isotopes as tracers has proved of great help, and to this end a mass-spectrometer has been obtained. In the following, some of the problems which have so far been subjected to closer investigations, will be dealt with.

On the basis of quantitative yield-data and total nitrogen content of experiment crops, it is possible to make an approximate estimate of the percental utilization of the supplied nitrogen fertilizers. The calculations show that, at best, 60 percent of the fertilizer nitrogen is utilized by the experimental crop during the first year. In the majority of cases only 20-40 percent are utilized, notwithstanding the nitrogen effect has then not reached its maximum. The extent to which one may reckon with a cumulative effect of the nitrogen is not known, the long-term experiments with nitrogen fertilizing being too few in number.

In view of the circumstance that nitrate nitrogen is very mobile in the soil it has been considered that the low utilization might be due to leaching of nitrates. Some long-term lysimeter experiments performed during the last few decades show, however, that only a minor part of the total shortcoming in the nitrogen balance may be considered due to leaching by precipitation. Thus it is apparent that part of the mineral nitrogen is lost to plants in some way or other, and much seems to

indicate that these losses may be rather great in certain soils and under certain conditions.

In the following some of the possible processes which at least at short sight may be of unfavorable influence on the nitrogen cycle will be touched upon. Of most importance in this connection is the fixation of ammonium nitrogen in certain clay soils, and the denitrification process. A few words will also be said about the transformation of calcium cyanamide in the soil.

Fixation of ammonium nitrogen in clay soils.

It has been known for more than thirty years that applied ammonium nitrogen cannot be exchanged by means of repeated KCL-extractions. At first, this was considered due to imperfect analysis methods. Later, more thorough research showed, however, that binding of NH_4^+ -ions into a non-exchangeable form, so-called fixation, is a rather common phenomenon in certain clays, and that is caused by direct exchange of NH_4^+ -ions in the lattice of certain clay minerals, chiefly illite. The lattice of mica minerals are namely composed of three-layer sheets which are kept together and electrically compensated by K-ions present between the sheets. The lattice bound potassium (hard-exchangeable potassium) is in equilibrium with the exchangeable potassium in the soil solution. In a soil, which has been impoverished in K by leaching, the K-ions in the lattices are in part replaced by ions which are dissolved in the soil solution, inter alia Ca, occasioning at the same time an expanded space between the sheets. If K-ions or NH_4^+ -ions, whose ionic radii are almost identical are supplied to such a soil, they will be exchanged in the lattice of clay minerals, and as

a result of this the spacing between the sheets will decrease. After that, these "locked" ions can only very slowly be exchanged by other cations. It appears from the above that a certain parallelism between K-fixation and NH_4^+ -fixation must be taken into account. This has also been substantiated in the majority of foreign investigations. Thus, rather strong correlation has been established between the power of the soils to fix K and NH_4^+ . As a consequence of this, the fixation of NH_4^+ ought to be comparatively lower if the soil has earlier been supplied with soluble K-salts. The last mentioned circumstance is illustrated by a simple laboratory experiment. The experiment soil was an intermediate clay with moderate humus content from Flo in the County of Skaraborg. The pH of the soil was 6.7.

The fixation process itself proceeds very rapidly; statements in relevant literature inform that about 80 percent of the supplied K-ions have been converted into hard-exchangeable form in the course of ten minutes. In Sweden, soils with strong NH_4^+ -fixation are chiefly found in low-lying areas, originally calcareous, where the clay minerals have become highly poor in potassium owing to leaching.

It would be of great importance for practical farming to find out the rate at which the fixed ammonium nitrogen is re-converted into exchangeable form, and thus been made available to higher plants as well as to microorganisms. As only very few data are available hereon in the relevant literature the National Agricultural Research Centre have started experiments intended to throw light on the nitrification of the supplied ammonium nitrogen in the soil (100 milligrammes N per kg soil). In

SOME FERTILIZER PROBLEMS INVESTIGATED IN LABORATORY EXPERIMENTS.

By HANS NOMMK, Agronomist,
National Agricultural Research Center. (Sweden)

AFTER IT GETS INTO THE SOIL?

these experiments the soil is kept at a temperature of 20°C and optimum moisture conditions. After certain, fixed intervals tests are made to enable ammonium and respectively nitrate determinations.

Practical measures to reduce the fixation of ammonium and potassium respectively would be (a) use of granulated fertilizers and (b) drilling these fertilizers. In field experiments, good results were obtained from drilling.

Denitrification

Loss of nitrate nitrogen from a soil due to microbial activity may result from two, fully different processes: 1) consumption of nitrate nitrogen for formation of microbial protein and 2) utilization of nitrates as a source of oxygen. In the last-mentioned case, nitrate thus serves as a "hydrogen-acceptor" in the respiration processes. Typical for this kind of nitrate reduction is emission of different gaseous nitrogen compounds, chiefly elementary nitrogen, N_2 and N_2O ; this process is called denitrification, in distinction from the nitrate reduction that takes place at nitrate assimilation. In the latter case there is only a transformation of the nitrogen between different oxidation stages, without any gaseous nitrogen compounds being released to the surroundings. In the reductions which are due to denitrification, however, there is a direct loss of plant-available nitrogen.

It is considered that denitrification takes place only under more or less anaerobic conditions, i.e. at insufficient aeration or at a high content of water in the soil. Cases are however reported, where denitrification could not be fully prevented despite a good supply of oxygen. Much seems to indicate that denitrification is a factor of greater importance

than hitherto assumed, and in cultivation it ought to be taken care of that such losses of nitrate nitrogen are reduced to a minimum. Good drainage of the fields and comparatively late distribution of the nitrate nitrogen would possibly be measures to counteract denitrification. It must be pointed out, however, that for the time being, farmers have but rather small possibilities of preventing losses of the mentioned kind.

In this connection it may also be mentioned that denitrification has never been established where the water content of the soil was under 60 percent of the maximum water capacity. At a higher water content, however, nitrogen losses due to denitrification will occur throughout, at a different rate in different soils. Liming and supplying of easily decomposable organic matter have proved to accelerate denitrification. The researches on this problem, however, have so far only been tentative, but promise interesting results.

Conversion of cyanamid nitrogen in the soil.

Calcium cyanamid is frequently considered a slow-acting nitrogen fertilizer. To throw light on this, the transformation of calcium cyanamid in different soils has been investigated in different laboratory experiments. For comparison, sulphate of ammonia has also been tested in the experiment. The experiments have shown that the conversion of the cyanamid nitrogen into ammonium nitrogen takes place rather rapidly, as a rule in 2-10 days, but after that the nitrification of the ammonium nitrogen thus formed proceeds much more slowly than that of the ammonium contained in the sulphate of ammonia. This is the case particularly in soils poor in colloids. It is

rather common that the nitrate content of treatments which have received calcium cyanamid fall short of the unmanured treatment for a month's period. Apparently the cyanamid has poisoned some of the active enzymes by the oxidative transformation of ammonium into nitrate.

Cotton Industry Supports Research Program

Administration efforts to boost farm research and education appropriations by \$18 million have received solid support from the nation's cotton industry.

Spokesmen for the National Cotton Council, testifying before the House Agricultural Appropriations Subcommittee last month, identified research and education as the keys to "a really sound and prosperous agriculture in the years ahead."

E. J. Cecil, crusher delegate to the Council from California summing up the industry, said, "we must have a market that is strong and expanding. It must get its strength, not spasmodically from wars and from shortages of other materials, but from a firm, steady rise in consumer demand.

"Second, we must go on lowering our cost of production. This is true regardless of what we think about lower prices as a means of meeting competition. The fact is that we need lower production costs for another reason on which all of us are undoubtedly agreed; namely, that the farmer's net income must be raised.

"Third, we must have greater progress toward the day when all farmers will have real, honest-to-goodness alternatives for the use of their resources and their



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Extracts from

AN ANNUAL REVIEW OF WORLD PRODUCTION AND
CONSUMPTION OF FERTILIZERS—1953
Prepared by the Land and Water Use Branch Agriculture Division
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, Italy

FAO WORLD REPORT

Notes on signs and abbreviations

In the detailed tables figures which are not those officially supplied by Governments (or calculated from them), but which are the compilers' unofficial estimates, are indicated by an asterisk*. These unofficial estimates are either derived from trade and other unofficial sources believed to be trustworthy; or when Governments have supplied official figures for only the first one or two of the three years here under review, the missing figure or figures for the 1952/53 preliminary estimate or for the 1953/54 forecast have been filled in (and similarly indicated by an asterisk) by using, as a comparative basis, the last figure officially supplied by the Government, except where a clear though only qualitative indication of probable change has been received.

TMT. Most of the quantities are expressed in thousands of metric tons, and for convenience in the text this is often abbreviated to TMT.

Percentages are mostly given to only two significant figures, and in many of the circumstances their own rounded off to the nearest whole number.

SUMMARY AND CONCLUSION

The general and progressive increase in the manufacture and use of commercial fertilizers, which has been so evident in most parts of the world in recent years, has been well maintained and even accelerated in the years now under review.

Although some of the most striking increases are occurring in the newly developing countries, especially in the East, where fertilizer usage has been practically negligible hitherto, the countries of the West with highly developed agriculture and where fertilizers have been in use on a large scale for many years, also continue to use fertilizers in ever-increasing amounts; they still account for the greater part of the annual tonnage increases in world consumption of nitrogen phosphoric acid and potash.

The combined world production of nitrogen (N), phosphoric acid (P_2O_5) and potash (K_2O) in 1951/52 was 15,386 thousands of metric tons (TMT), an increase of 7.6 percent over 1950/51, as compared with the preliminary estimate of 4.9 percent in the 1952 Report. The corresponding figure for total world consumption is 14,558 TMT in 1951/52, an increase of 5.7 percent over 1950/51 as against

DETAILED DATA OF PRODUCTION AND CONSUMPTION BY COUNTRIES

The following Tables contain the official figures for each country whose Government returned the questionnaire (up to 1st September 1953), and the unofficial estimates, indicated by an asterisk*, where official figures are lacking, for these and other countries (but excluding the U.S.S.R., continental China and North Korea), for production and consumption of fertilizers in terms of nitrogen, phosphoric acid and potash for the years 1951/52, 1952/53 (preliminary) and 1953/54 (forecast).

NITROGEN PRODUCTION

for years ending 30 June 1952, 1953 and 1954.
Metric Tons of Nitrogen (N)

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
EUROPE			
Austria	94,095	92,660	94,000*
Belgium	217,210	176,000	180,000
Czechoslovakia	30,300*	30,300*	30,300*
Finland	314	5,500	14,000
France	293,000	288,000	305,000
Germany—Federal Republic	538,047	580,000	600,000
Soviet Zone	205,000*	213,000*	213,000*
Hungary	4,000*	4,000*	4,000*
Italy	184,297	213,000	284,000
Netherlands	230,000	243,000	255,000
Norway	166,736	164,900	181,900
Poland	65,000*	65,000*	65,000*
Portugal ^{1/}	8,693	8,693*	8,693*
Spain	26,000	43,000	43,000*
Sweden	17,535	21,345	22,000
Switzerland	12,500	14,000	14,000
United Kingdom	290,642	308,000	305,000
Yugoslavia	3,453	3,500*	4,500*
Total	2,386,822	2,473,898	2,623,393
NORTH AND CENTRAL AMERICA			
Canada	163,000	164,000	168,000
Mexico	13,140	14,400	15,000
United States	1,096,000	1,252,000	1,452,000
Total	1,272,140	1,430,400	1,635,000
SOUTH AMERICA			
Brazil	3,500*	3,500*	3,500*
Chile ^{1/}	239,431	245,000*	250,000*
Peru ^{2/}	33,205	29,547	30,000*
Total	276,136	278,047	283,500
ASIA			
India	23,134	64,219	70,000
Japan	456,000	508,000	525,000
Philippines			10,000
Taiwan (Formosa)	13,849*	14,320*	14,320*
Turkey	1,030	1,236	1,483
Total	494,013	589,775	620,803
AFRICA			
Egypt	17,050	20,150	27,900
Union of South Africa ^{2/}	450	450	450
Total	17,500	20,600	28,350
OCEANIA			
Australia	13,524	13,650	11,760
New Zealand ^{3/}	2,250	2,250	2,250
Total	15,774	15,900	14,010
WORLD TOTAL	4,462,385	4,808,620	5,205,056

^{1/} Calendar years 1952, 1953, 1954.

^{2/} Guano

^{3/} From organic sources.

May, 1954

the preliminary estimate of 5.0 percent in the 1952 Report.

The preliminary estimate for **production in 1952/53**, of fertilizer nutrients (nitrogen, phosphoric acid and potash together) is 16,406 TMT, representing an increase of 6.7 percent over the figure for 1951/52, and for **consumption**, 15,735 TMT, representing an increase of 8.1 percent.

The **forecasts for 1953/54** predict further increases in production and consumption (N, P₂O₅ and K₂O together) of 6.6 percent and 5.9 percent respectively.

Nitrogen shows the largest and most consistently sustained rate of annual increase, viz:

Production: 1951/52: 11.2 percent; 1952/53: 7.8 percent; 1953/54: 8.2 percent.

Consumption: 1951/52: 7.7 percent; 1952/53: 11.1 percent; 1953/54: 6.6 percent.

The figures for **Potash** are only slightly lower than those for nitrogen, viz:

Production: 1951/52: 9.7 percent; 1952/53: 3.3 percent; 1953/54: 7.1 percent.

Consumption: 1951/52: 10.5 percent; 1952/53: 6.8 percent; 1953/54: 5.3 percent.

Phosphoric acid shows a good recovery from the setback caused by the recent restrictions in production as a result of the world shortage of sulphur, viz:

Production: 1951/52: 3.4 percent; 1952/53: 3.3 percent; 1953/54: 7.1 percent.

Consumption: 1951/52: 0.7 percent; 1952/53: 6.9 percent; 1953/54: 5.9 percent.

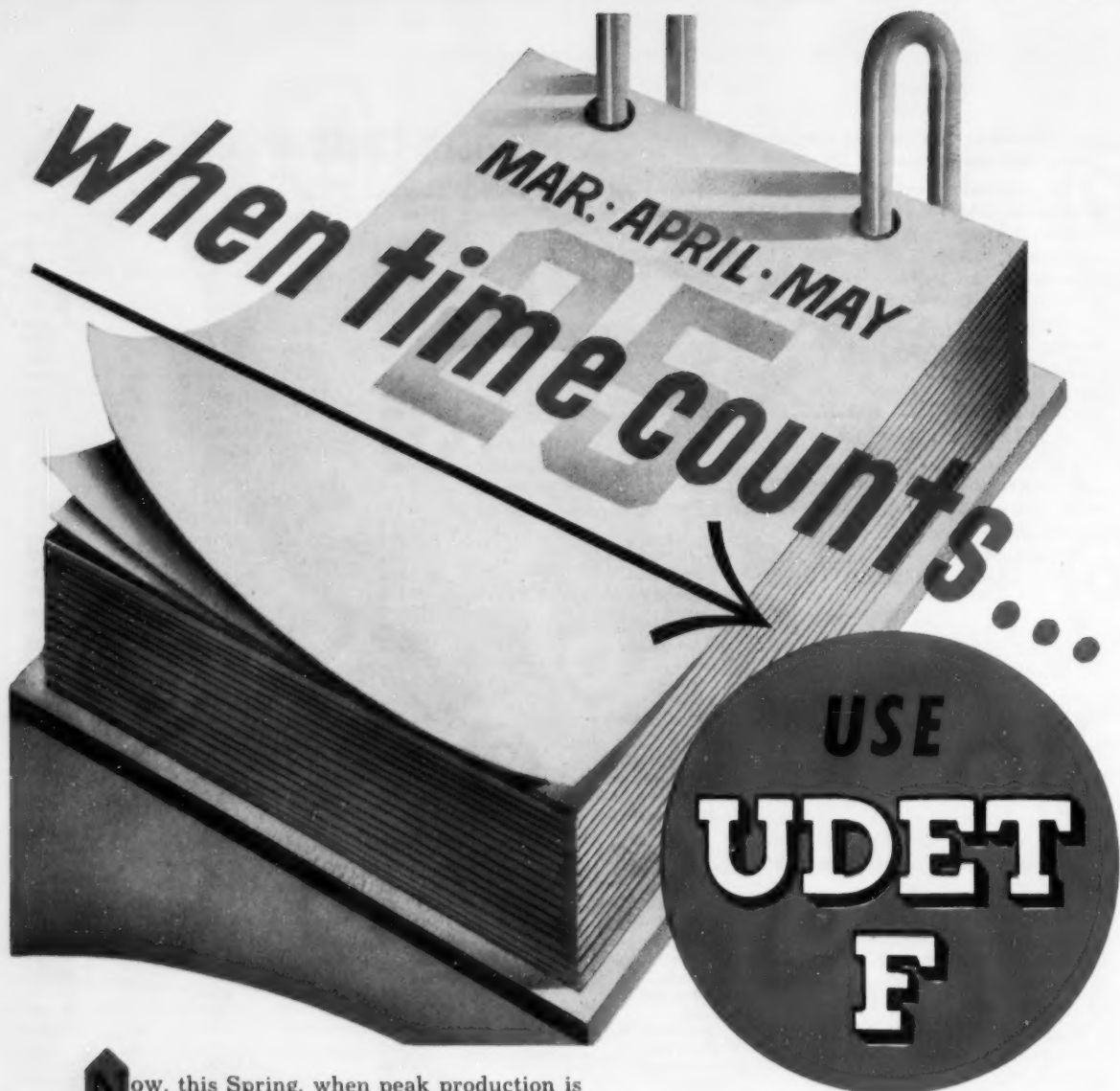
The supply of phosphatic fertilizers is still perhaps the most crucial factor in relation to a further general expansion in the use of fertilizers. Although sulphur supplies have improved, the margin of supply over demand is still small and the future position is precarious. Developments are actively continuing in various parts of the world for the greater use of other sources of sulphur (e.g. pyrites, industrial wastes, gypsum) and in the production of fertilizers containing water-soluble or citric-soluble phosphoric acid by

NITROGEN CONSUMPTION

for years ending 30 June 1952, 1953 and 1954.
Metric Tons of Nitrogen (N)

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
EUROPE			
Austria	28,680	22,285	28,000
Belgium	81,500	83,500	85,000
Czechoslovakia	40,000*	40,000*	40,000*
Denmark	70,688	70,800	72,000
Finland	25,231	26,000	35,000
France	250,100	271,000	298,000
Germany—Federal Republic	386,439	400,000	420,000
Soviet Zone	191,000*	196,000*	200,000*
Greece	30,080	28,500	34,000
Hungary	1,400*	1,400*	1,400*
Iceland	2,406	3,526	3,700
Ireland (Eire)	7,839	7,411	8,500
Italy	161,346	175,000	190,000
Luxembourg	3,294	3,315	3,315
Malta	154*	183*	183*
Netherlands	156,000	160,000	165,000
Norway	33,397	36,500	37,000
Poland	75,000*	75,000*	75,000*
Portugal and Overseas ^{1/}			
Territories	27,498	27,500*	27,500*
Spain	111,300	116,400	117,000*
Sweden	62,494	68,795	68,000
Switzerland	8,500	10,000	10,000
United Kingdom	185,722	215,000	225,000
Yugoslavia	4,400	5,250*	5,250*
Total	1,944,468	2,043,365	2,140,848
NORTH AND CENTRAL AMERICA (INCLUDING CARIBBEAN ISLANDS)			
British West Indies:			
Barbados	2,272	2,214	2,250*
Dominica	44	51	57
Grenada	52	49	50
Jamaica	3,198	3,350	3,840
St. Lucia	102	123	129
St. Vincent	173	169	172
Trinidad and Tobago	2,906	1,629	2,000
British Honduras	65*	44*	20*
Canada	40,000	40,000	40,000
Costa Rica	600*	600*	600*
Cuba	25,687*	27,000*	27,000*
Dominican Republic	1,600*	1,162	1,265*
Honduras	416*	325*	325*
Martinique	1,865	1,900	2,000
Mexico	14,019	19,137	21,500
Netherlands Antilles		120	130
Panama	1,000*	1,000*	1,000*
United States and Territories	1,293,000	1,506,000	1,660,000
Total	1,387,599	1,604,873	1,762,338
SOUTH AMERICA			
Argentina	6,500*	6,500*	6,500*
Brazil	13,000*	13,000*	13,000*
British Guiana	3,200*	3,200*	3,200*
Chile ^{1/}	13,310	16,600	17,000*
Colombia	3,106	3,557	4,212
Ecuador	200*	200*	200*
Peru	37,377	35,547	36,000*
Surinam	150	180	200*
Uruguay	500*	500*	500*
Venezuela	1,500*	1,500*	1,500*
Total	78,843	80,784	82,312
ASIA			
Burma	268	309	309*
Cambodia	21*	21*	21*
Ceylon	15,826	15,552	15,552*
Cyprus	1,449	1,500*	1,500*

(Continued on page 32)



Now, this Spring, when peak production is your goal, use UDET F and get: Faster curing. Easier handling of materials. Faster milling and screening. Minimum "down" time.

Maintain maximum production. And deliver a fully-cured product, practically free from caking, for continued customer satisfaction.

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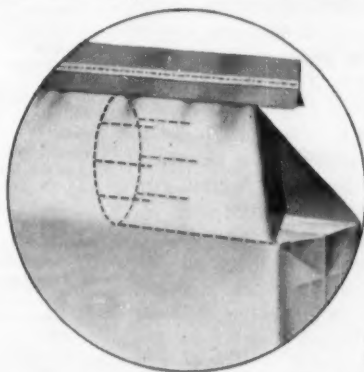
With Bemis B-FLEX Bags, you also get the same bonus you get with all Bemis Multiwalls—**BEMIS MULTI-COLOR PRINTING** . . . your brand at its finest on multiwall bags.

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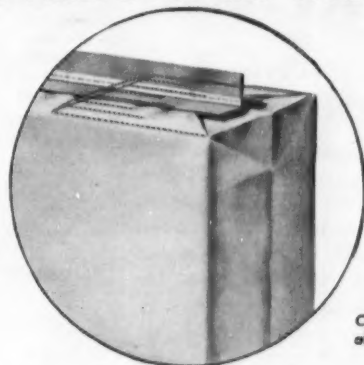
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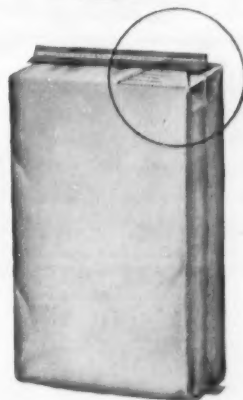


Open . . .
for filling

The FLEX Does the Trick...



Closed . . .
after filling



processes requiring no sulphuric acid. It seems likely that phosphatic fertilizers may figure more prominently in the expansion of fertilizer-use in the newly developing countries, where the emphasis so far has been mainly on nitrogen fertilizers: the full benefit obtainable from nitrogen dressings may not be obtained on many areas because of phosphate deficiency in the soil. This potentially larger relative increase in the demand for phosphatic fertilizers in newly-developing countries may, however, be offset to some extent by a relative reduction in phosphate use in the West. There are indications that the proportion of phosphoric acid to nitrogen in the dressings used in some of the countries with highly developed agriculture could be somewhat reduced with advantage. Such a reduction might, however, take place more by increasing the amounts of nitrogen used than by reducing the amounts of phosphate.

The estimated overall increases in the world production and consumption of fertilizers over the three-year period from 1950/51 to 1953/54 are, for production:

N 30 percent; P_2O_5 14 percent; K_2O 26 percent; and for consumption: N 28 percent; P_2O_5 14 percent; K_2O 24 percent. There seems little reason to doubt that such increases will continue, perhaps even at an accelerated rate. With the drive for increased food production, especially in the East, the use of fertilizers in the densely populated and undernourished regions may be expected to increase faster and faster. Some idea of the enormous size of the potential demand for fertilizers in regions with less highly developed agriculture may be derived from the following figures for the present rate of consumption of fertilizers on the agricultural land¹ in different regions or countries, viz:

1. "Agricultural land" includes arable land, plus permanent meadows and pastures.

NITROGEN CONSUMPTION CONTINUED

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
India	50,892	105,234	110,000
Indonesia	10,792	11,450	11,450*
Iraq	160*	170*	170*
Israel	4,300	7,400	10,000
Japan and Ryukyus	392,000	400,000	400,000
Korea, South	49,325	126,725	126,725*
Lebanon	1,550*	1,550*	1,550*
Malaya	8,460	5,820	5,800
Netherlands New Guinea	2	2	3
North Borneo	109	140	144
Pakistan	3,085	3,603	15,000*
Philippines	24,080	26,500	40,000
Sarawak	22*	22*	22*
Syria	1,500	2,000	2,000
Taiwan	76,215*	80,000*	80,000*
Thailand	3,132	4,504	5,000
Turkey	5,961	7,094	8,584
Viet-Nam	1,750	1,750	1,750
Total	650,899	801,346	835,580
AFRICA			
Algeria	7,412	4,500	7,000
Anglo-Egyptian Sudan	5,500*	5,500*	5,500*
Belgian Congo	230*	230*	230*
British Africa:			
Gold Coast	12	15	15*
Kenya	630	630	840*
Nigeria	1,648	1,854	1,900*
Nyasaland	1,300*	1,500*	1,500*
Northern Rhodesia	365	430	530
Southern Rhodesia	2,000*	2,000*	2,000*
Tanganyika	335	300	316
Uganda	81	170	142
Zanzibar	1	1	1
Other countries	1,500*	1,500*	1,500*
Egypt	105,625	111,030	117,900
Liberia	1	2	3
Libya	120*	120*	120*
Madagascar	350*	350*	350*
Mauritius	5,553	5,978	6,000*
Morocco	1,950	2,000	2,500
Reunion	2,420	2,390	2,100
Tunisia	175*	175*	175*
Union of South Africa	13,950	12,850	13,950
Total	151,158	153,525	164,572
OCEANIA			
Australia	16,932	14,700	14,700
Fiji	725	866	750
New Zealand	3,670	3,339	3,339
Total	21,327	18,905	18,789
WORLD TOTAL	4,234,294	4,702,798	5,012,539

^{1/} Calendar years 1952, 1953, 1954.

TOTAL PHOSPHORIC ACID

Supplied by Superphosphate, Basic Slags and Other Forms of Phosphate.
(excluding ground rock phosphate for use without processing)
PRODUCTION for years ending 30 June 1952, 1953 and 1954.
Metric Tons P_2O_5

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
EUROPE			
Belgium	265,534	221,416	250,000*
Czechoslovakia	56,000*	56,000*	56,000*
Denmark	76,000	76,000	80,000
Finland	67,208	71,000	71,000*
France	548,000	481,000	525,000

(Continued on page 33)

	N	P ₂ O ₅	K ₂ O
Metric tons per 1000 hectares of agricultural land.			
Western Europe	13.4	17.6	20.4
United States	2.9	4.4	3.2
South America	0.2	0.3	0.1
Asia	0.8	0.4	0.2
Japan	60.8	37.2	21.7
Africa	0.2	0.2	—
Oceania	0.1	1.2	0.1

As a result of the widespread extension and demonstration programs for the education of the cultivators in the use of fertilizers, which are now being undertaken by the Governments of many of the newly developing countries, with technical assistance from bilateral and international agencies, the cultivator may be expected to become increasingly "fertilizer conscious," and more and more of this enormous potential demand may become real.

So far as the immediate future is concerned, the various reported plans and projects for expansion of existing fertilizer plants and erection of new ones, and for developing the exploitation of natural reserves of raw materials, may be expected to suffice to meet this prospective increasing demand, but in time very much greater expansion of production may be needed, in which the establishment of nitrogen factories in areas where supplies of cheap energy are available, such as oil-fields, may be destined to play a big part.

Bag Storage Tips By Fulton Bag

Fulton Bag and Cotton Mills believing, as they put it that "an ounce of prevention is worth a pound of cure" have published a booklet which explains the causes of dry breakage in multiwall bags, and how to prevent it. They discuss steam pipe valves, water barrel wicks, windows and hoses, water pipe holes—all as contributory causes to bag damage. And they propose a permanent safe storage plan, complete with humidifying system that should be installed in bag storage areas.

This cost-cutting document is available free from any of the many Fulton offices or the General Sales Office in New Orleans.

TOTAL PHOSPHORIC ACID CONTINUED

Continent and Country	1951/52	Preliminary 1952/53	Forecast 1953/54
Germany—Federal Republic	429,199	485,000	510,000
Soviet Zone	26,000*	26,000*	26,000*
Greece	23,732	17,280	17,280*
Hungary	4,000*	4,000*	4,000*
Ireland (Eire)	23,366	25,500	26,000
Italy	320,081	360,000	360,000
Luxembourg	97,750	93,500	93,500
Netherlands	154,000	122,000	125,000
Norway	20,956	21,350	25,500
Poland	50,000*	50,000*	50,000*
Portugal ^{1/}	58,391	58,400*	58,400*
Spain	192,000	208,000	208,000*
Sweden	91,396	95,940	100,000
Switzerland	6,500	7,000	7,000
United Kingdom	248,792	300,000	325,000
Yugoslavia	8,280	14,518	21,879
Total	2,769,105	2,793,904	2,939,559
NORTH AND CENTRAL AMERICA			
Cuba	6,000*	6,000*	6,000*
Canada	119,000	119,000	140,500*
Jamaica	151	122	122*
Mexico	10,518	19,168	19,200
United States	2,046,000	2,232,000	2,449,000
Total	2,181,669	2,376,290	2,614,822
SOUTH AMERICA			
Argentina	7,500*	7,500*	7,500*
Brazil	13,500*	13,500*	13,500*
Chile ^{1/}	15,696	19,000*	22,000*
Ecuador	60*	60*	60*
Peru ^{2/}	29,781	26,461	26,461*
Uruguay	1,000*	1,000*	1,000*
Total	67,537	67,521	70,521
ASIA			
India	9,120	8,000	9,000
Israel	6,630	8,712	20,000
Japan	268,000	241,000	272,000
Korea, South	200	1,200	1,200
Taiwan	12,314*	13,680*	13,680*
Turkey	3,400	4,080	4,760
Total	299,664	276,672	320,640
AFRICA			
Algeria	19,992	13,072	16,000
Egypt	14,868	18,000	19,500
Kenya	800	1,200	1,600
Morocco	14,220	16,200	17,000
Tunisia	8,650*	9,500*	10,000*
Union of South Africa	112,000	112,450	112,450
Total	170,530	170,422	176,550
OCEANIA			
Australia	357,060	357,632	352,000
New Zealand	122,135	123,230	127,750
Total	479,195	480,862	479,750
WORLD TOTAL	5,967,700	6,165,671	6,601,642

^{1/} Calendar years 1952, 1953, 1954.

^{2/} Guano.

HOW TO GET COMPLETE REPORT

Those who have followed our previous publications of the reports of the Food and Agriculture Organization of the United Nations, know how painstakingly they are prepared. The following is extracted from the whole report which forecasts 1954 figures. The whole report may be secured by writing them at Viale delle Terme di Caracalla, Rome, Italy.

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(Continued from page 22)

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P. O. Wilson, secretary-manager of the National Livestock Producers Association, Chicago, Ill.

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Head: Homer L. Brinkley, executive vice president of the National Council of Farmer Cooperatives, Washington, D. C., and U.S. representative to several international conferences on agriculture.

Executive Secretary: T. O. Engbretson, member of the Foreign Agricultural Service with several years of experience for the U.S. Government in the Far East.

Members:

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Earl E. Hanway, publisher of the Casper Tribune Herald, Casper, Wyo.

Fred A. Hobart, member, board of directors, Amer. National Cattleman's Assn., Pampa, Texas.

T. O. Kluge, manager of the Calif. Prune and Apricot Growers Assn., San Jose, Calif.

E. M. Norton, exec. dir. of the National Milk Producers Assn., Washington, D. C.

J. Stuart Russell, farm editor of the Des Moines Register and Tribune, Iowa, and member of the USDA Advisory Committee on Foreign Trade and Technical Assistance.

R. C. Travis, tobacco consultant of the Burley Tobacco Growers Coop. Assn., Lexington, Ky.

George Wilson, president of the California Farm Bureau, Clarksburg, Calif.

Mission to Latin America

Head: Dean Harry J. Reed, of Purdue University, Lafayette, Ind., and U. S. food representative to Pakistan in 1953.

Executive Secretary: Arthur G. Kevorkian, member of the Department's Foreign Agricultural Service

PHOSPHORIC ACID CONSUMPTION

for years ending 30 June 1952, 1953 and 1954
(excluding ground rock phosphate).
Metric Tons Phosphoric Acid (P₂O₅)

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
EUROPE			
Austria	40,386	30,870	40,000
Belgium	82,500	90,000	95,000
Czechoslovakia	60,000*	60,000*	60,000*
Denmark	82,439	86,600	90,000
Finland	77,393	81,000	90,000
France	447,000	442,000	465,000
Germany—Federal Republic	471,892	475,000	500,000
Soviet Zone	66,000*	66,000*	66,000*
Greece	23,341	24,000	30,000
Hungary	11,000*	11,000*	11,000*
Iceland	935	1,645	1,800
Ireland (Eire)	32,222	37,000	38,500
Italy	296,296	325,000	330,000
Luxembourg	5,270	5,270	5,270
Netherlands	96,000	115,000	115,000
Norway	35,472	37,500	37,900
Poland	60,000*	60,000*	60,000*
Portugal and Overseas ^{1/}			
Territories	56,036	56,036*	56,036*
Spain	188,800	203,200	203,200*
Sweden	97,756	95,515	97,000
Switzerland	27,600	32,000	32,000
United Kingdom	250,891	335,000	355,000
Yugoslavia	8,280	14,518	21,879
Total	2,517,509	2,684,154	2,800,585
NORTH AND CENTRAL AMERICA (INCLUDING CARIBBEAN ISLANDS)			
British West Indies:			
Barbados	3	3	3
Dominica	45	46	50
Grenada	82	73	80
Jamaica	547	455*	455*
St. Lucia	61	34	120
St. Vincent	25	17	20
Trinidad and Tobago	393	154	300
British Honduras	10	20	10*
Canada	119,000	119,000	119,000*
Cuba	26,635*	29,000*	29,000*
Dominican Republic	1,834	2,900	2,900
Martinique	1,200	1,200	1,700
Mexico	11,118	23,668	26,700
United States and Territories	1,996,000	2,186,000	2,395,000
Other Central American Republics	800*	800*	800*
Total	2,157,753	2,363,370	2,576,138
SOUTH AMERICA			
Argentina	7,000*	8,000*	8,000*
Brazil	33,000*	33,000*	33,000*
British Guiana	150*	150*	150*
Chile ^{1/}	15,696	19,600	19,600*
Colombia	8,541	9,781	11,583
Ecuador	161*	161*	161*
Peru	29,781	26,475	26,475*
Surinam	35	40	50
Uruguay	1,500*	1,500*	1,500*
Venezuela	600*	600*	600*
Total	96,464	99,307	101,119
ASIA			
Burma	133*	133*	133*
Ceylon	185	290	290*
Cyprus	4,143	4,143*	4,143*
India	10,350	11,675	10,200
Indonesia	8,283	8,325	8,325*
Iraq	45*	30*	30*

(Continued on page 38)



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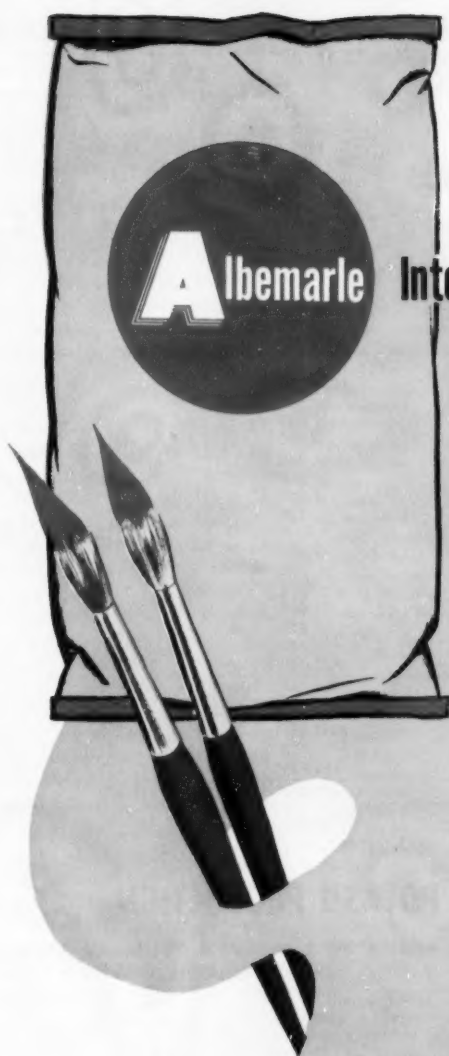
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Paul Sanders, editor of the Southern Planter Magazine, Richmond, Va.

Joseph C. Scott, pres. of the Bankers Security Life Insurance Co., Oklahoma City, Okla.

A. B. Sparboe, chairman of the Export Advisory Committee of the Millers National Federation, Minneapolis, Minn.

Milo K. Swanton, executive secretary of the Wisconsin Council of Agricultural Cooperatives, Madison, Wisc., and member of the National Agricultural Advisory Commission.

Alfred J. Tisch, partner in the James Mills Orchards Co., Hamilton, Calif.

Itineraries of Trade Missions

Secretary of Agriculture Ezra Taft Benson announced the itinerary and departure plans of the three missions, who left by plane for their respective areas following four days of conferences and briefing sessions which included a visit with the President. The itineraries of the three groups—as presently scheduled—plus a summary of trade relationships which exists with the areas about to be visited, are:

Europe

The mission to Europe will split after visiting the United Kingdom and France, with one party visiting the northern European countries and the other visiting the countries of southern Europe and the Mediterranean. Before returning to the United States, however, the parties will meet again in West Germany.

The group to northern Europe will follow this itinerary:

PHOSPHORIC ACID CONSUMPTION CONTINUED

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
Israel	9,870	9,192	20,000
Japan and Ryukyus	240,000	256,000	255,000
Korea, South	19,522	11,251	11,251*
Malaya	450	277	420
Netherlands New Guinea	3	4	5
Pakistan	24	195	
Philippines	11,585	14,879	18,000
Syria	300	400	450
Taiwan	18,193*	25,560*	25,560*
Thailand	844	940	1,000
Turkey	7,353	8,823	10,588
Viet-Nam	1,400	1,400	1,400
Total	322,684	353,517	367,795
AFRICA			
Algeria	22,300	15,200	19,000
British Africa:			
Gold Coast	49	45	45*
Kenya	4,160	4,602	5,830
Nigeria	360	540	540*
Nyasaland	300*	300*	300*
Northern Rhodesia	1,087	1,250	1,450
Tanganyika	140	138	140
Uganda		18	18*
Egypt	17,306	17,160	19,500
Mauritius	1	45	45*
Liberia	2	3	5
Morocco	11,000	12,300	13,500
Reunion	852	860	775
Tunisia	8,650*	8,650*	8,650*
Union of South Africa	105,160	107,770	107,770
Total	171,567	168,881	177,568
OCEANIA			
Australia	341,271	350,790	351,780
Fiji	175	231	230
New Zealand	132,738	127,132	131,652
Total	474,184	478,153	483,662
WORLD TOTAL	5,750,161	6,147,382	6,506,867

* Calendar years 1952, 1953, 1954.

POTASH PRODUCTION

for years ending 30 June 1952, 1953 and 1954.
Metric Tons of Potash (K₂O)

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
EUROPE			
Belgium	44,949	61,976	50,000
France	867,300	890,000	920,000
Germany—Federal Republic	1,197,912	1,275,000	1,300,000
Soviet Zone	1,400,000*	1,500,000*	1,500,000*
Italy	1,550	2,000	2,000
Netherlands	1,000	1,000	1,000
Spain	155,000	166,000	166,000*
Sweden	720	600	600
United Kingdom	1,117	4,000	5,000
Total	3,669,548	3,900,576	3,944,600
NORTH AND CENTRAL AMERICA			
United States	1,251,000	1,471,000	1,633,000
Total	1,251,000	1,471,000	1,633,000
SOUTH AMERICA			
Chile ^{1/}	12,454	15,000*	17,500*
Peru ^{2/}	4,956	4,410	4,410*
Total	17,410	19,410	21,910
ASIA			
India	440	440	700
Israel		40,000	80,000
Total	440	40,440	80,700
WORLD TOTAL	4,938,398	5,431,426	5,680,210

^{1/} Calendar years 1952, 1953, 1954.

^{2/} Guano.

Leave Washington, D. C. April 11
 Arrive London, England April 12
 Arrive Paris, France April 17
 Arrive Brussels, Belgium April 23
 Arrive Amsterdam, Netherlands April 27

Arrive Copenhagen, Denmark May 2
 Arrive Oslo, Norway May 4
 Arrive Stockholm, Sweden May 7
 Arrive Vienna, Austria May 12
 Arrive Zurich, Switzerland May 16
 Arrive Frankfurt, Germany May 19
 Arrive Washington, D. C. May 27

The southern Europe and Mediterranean group will follow this itinerary:

Leave Washington, D. C. April 11
 Arrive London, England April 12
 Arrive Paris, France April 17
 Arrive Lisbon, Portugal April 23
 Arrive Madrid, Spain April 27
 Arrive Barcelona, Spain April 29
 Arrive Rome, Italy April 30
 Arrive Cairo, Egypt May 6
 Arrive Istanbul, Turkey May 11
 Arrive Ankara, Turkey May 14
 Arrive Athens, Greece May 14
 Arrive Frankfurt, Germany May 19
 Arrive Washington, D. C. May 27

The area to be visited by the two parties represents the United States' largest single market for farm products. In 1952, the U. S. sent 43.3 percent of its total farm exports (amounting to \$1,483 million) to this area. Items included wheat, corn, rye, and other grains and preparations; lard, tallow, soybeans, and other fats and oils; cotton, tobacco, fruits, nuts, vegetables, and livestock products.

The Far East is the United States' second best customer for agricultural products. In 1952, the U. S. sent 26.7 percent of its total farm exports (amounting to \$916 million) to this area. Principal items included wheat and flour, rice and other grains and preparations; cotton, fats and oils, tobacco, hops, fruits and vegetables, and dairy products, including canned milk.

Asia

Leave Washington, D. C. April 11
 Arrive Rome, Italy April 12
 Arrive Karachi, India April 13
 Arrive Bombay, India April 17
 Arrive New Delhi, India April 21
 Arrive Rangoon, Burma April 27
 Arrive Bangkok, Thailand April 29

POTASH CONSUMPTION

for years ending 30 June 1952, 1953 and 1954.
 Metric Tons of Potash (K₂O)

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
EUROPE			
Austria	38,827	33,400	38,000
Belgium	144,000	140,000	145,000
Denmark	130,385	151,100	165,000
Finland	41,708	46,000	45,000
France	411,000*	415,000*	415,000*
Germany—Federal Republic	723,293	750,000	800,000
Soviet Zone	400,000*	400,000*	400,000*
Greece	4,462	3,400	7,500
Iceland	993	1,368	1,500
Ireland (Eire)	19,810	22,700	25,000
Italy	25,773	26,300	30,000
Luxembourg	4,040	4,250	4,250
Netherlands	160,000	160,000	150,000
Norway	44,854	47,000	47,500
Portugal and Overseas ^{1/}			
Territories	6,070	6,070*	6,070*
Spain	55,000	46,000	46,000*
Sweden	62,758	63,850	63,600
Switzerland	17,300	18,400	17,000
United Kingdom	172,344	200,000	210,000
Yugoslavia	1,872	4,000*	4,000*
Eastern Europe, including Bulgaria, Poland, Czechoslovakia, Hungary and Roumania	300,000*	310,000*	310,000*
Total	2,764,489	2,848,838	2,930,420
NORTH AND CENTRAL AMERICA (INCLUDING CARIBBEAN ISLANDS)			
British West Indies:			
Barbados	2,744	2,297	2,744
Dominica	34	46	50
Grenada	56	48	52
Jamaica	1,617	2,318	1,838
St. Lucia	93	36	105
St. Vincent	134	100	120
Trinidad and Tobago	552	646	577
British Honduras	11*	20*	10*
Canada	66,000	66,000	66,000*
Cuba	18,128*	20,000*	20,000*
Dominican Republic	544	672	672
Honduras	6*	6*	6*
Martinique	1,600	1,700	1,700
Mexico	5,140	9,000	9,500
United States and Territories	1,434,000	1,582,000	1,733,000
Other Central American Republics	1,700*	1,800*	1,800*
Total	1,532,359	1,686,749	1,836,174
SOUTH AMERICA			
Argentina	1,600*	1,600*	1,600*
Bolivia	20*	20*	20*
Brazil	14,000*	16,000*	16,000*
British Guiana	16*	16*	16*
Chile ^{1/}	3,054	3,800	3,800*
Colombia	6,988	8,003	9,477
Ecuador	20*	20*	20*
Peru	5,270	4,710	4,710*
Surinam	24	30	40*
Venezuela	1,000*	1,000*	1,000*
Total	31,992	35,199	36,683
ASIA			
Burma	30	30*	30*
Cambodia	12*	12*	12*
Ceylon	12,536	9,192	9,192*
Cyprus	237	237*	237*
India	7,184	7,040	7,000
Indonesia	382	400	400*

(Continued on page 42)



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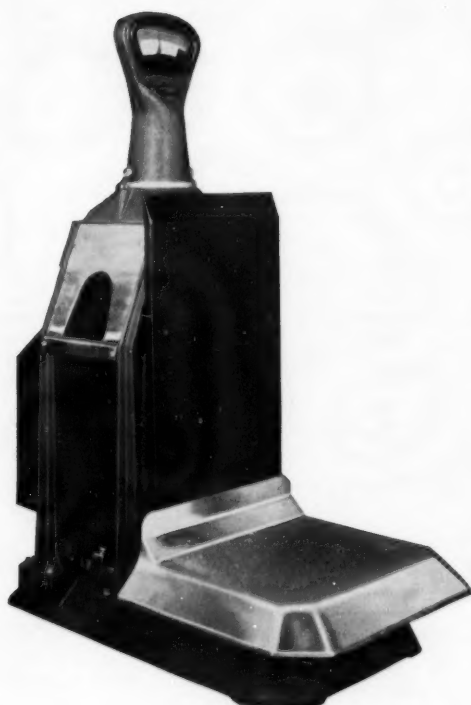


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 Arrive Hong Kong, China May 16
 Arrive Toyko, Japan May 18
 Arrive Washington, D. C. May 25

Latin America

Latin America is the United States' third best customer for agricultural products. In 1952, it sent 17.3 percent of its total farm exports (amounting to \$592 million) to this area. Principal items included wheat and flour, rice and other grains and preparations; cotton, fats and oils, tobacco, hops, fruits and vegetables, and dairy products, including canned and dried milk.

Leave Washington, D. C. April 10
 Arrive Mexico City, Mexico April 11
 Arrive Panama City, Panama April 15
 Arrive Bogota, Colombia April 21
 Arrive Lima, Peru April 24
 Arrive Santiago, Chile April 29
 Arrive Buenos Aires May 3
 Arrive Montevideo, Uruguay May 7
 Arrive Sao Paulo, Brazil May 9
 Arrive Rio de Janeiro, Brazil May 12
 Arrive Caracas, Venezuela May 16
 Arrive Havana, Cuba May 20
 Arrive Washington, D. C. May 25

POTASH CONSUMPTION CONTINUED

Continent and Country	1951/52	1952/53 Preliminary	1953/54 Forecast
Iraq	15*	15*	15*
Israel		3,000	4,000
Japan and Ryukyus	140,000	205,000	220,000
Korea, South		6,974	6,974*
Lebanon	1,500*	1,600*	1,600*
Malaya	2,350	850	850*
Netherlands New Guinea	1	2	2
North Borneo	1	1	1
Philippines	4,605	5,800	7,700
Syria	25	100	100
Taiwan	15,963*	20,247*	20,247*
Thailand	308	228	228*
Turkey	3,333	4,000	4,080
Viet-Nam	1,300	1,300	1,300
Total	189,782	266,028	283,968
AFRICA			
Algeria	12,810	7,200*	12,000*
British Africa:			
Gold Coast	1	1	1*
Nigeria	150	250	250*
Nyasaland	120*	140*	140*
Northern Rhodesia	510	586	670
Tanganyika	40	46	48*
Uganda		18	18*
Zanzibar	1		
Egypt	1,469	530	700
Liberia	1	1	3
Mauritius	3,537	3,696	3,696*
Morocco	5,000	5,000	5,000
Reunion	935	850	780
Tunisia	750*	800*	800*
Union of South Africa	8,100	8,460	8,550
Total	33,424	27,578	32,656
OCEANIA			
Australia	9,648	8,285	8,600
New Zealand	12,177	12,060	13,440
Total	21,825	20,345	22,040
WORLD TOTAL	4,573,871	4,884,737	5,141,941

* Calendar years 1952, 1953, 1954.

USDA SUPPLEMENTAL REPORT

A Fertilizer Staff Report—Prepared by J. N. LOWE and C. A. GRAHAM,
 Commodity Stabilization Service,
 Mobilization Activities Division,
 U. S. Department of Agriculture, Washington, D. C.

This supplemental report reflects changes in the 1953-54 fertilizer supply estimates which were contained in the report issued in November, 1953.

The movement of fertilizer materials into trade channels was unusually slow during the period July, 1953 through January, 1954. The drop in fertilizer movement was reported to be more than 25 percent in some areas with an estimated decrease of 12 percent for the industry as a whole, as compared to the

corresponding period the previous season.

This slow movement, in many instances, taxed storage capacity to the limit and production of certain materials was curtailed. A combination of several factors caused this condition. Included among them was the extended drought, which affected a great section of the country; also to be considered was the drop in farm income in 1953 and the uncertain outlook for 1954. There was a marked hesitancy on the part of

some members of the trade—as well as users—to purchase in advance, since ample supplies were expected to be available and any favorable price change would work to their advantage. Improved equipment, which enables farmers to handle large volumes of material in a relatively short period of time, and changing distribution techniques are also influencing the seasonal movement of fertilizer materials.

Storage will continue to be a major problem that warrants further study and consideration.

Beginning in late February the situation gradually changed and by mid-March shipments in many areas exceeded the rate of movement in the spring of 1953.

Table 1. — NITROGEN*: Estimated 1953-54 Supply for Fertilizer Purposes
United States and Possessions
(In tons of 2,000 pounds nitrogen (N))

Source	Ammonium Nitrate All Grades	Ammonium Sulfate & Ammonium Sulfate Nitrate 1/	Other Solids 2/	Natural Organics 3/	Compound Ammoniating Solutions AN-NH ₃ & UAL 4/	NH ₃ for Ammoniation 5/	Ammonia for Direct Application 6/	Total by Source
U. S. Production								
Synthetic ammonia	285,000	115,000	100,000	—	405,000	70,000	325,000	1,300,000
By-product ammonia	—	177,000	—	—	—	3,000	—	180,000
Natural organics	—	—	—	35,000	—	—	—	35,000
Total	285,000	292,000	100,000	35,000	405,000	73,000	325,000	1,515,000
Exports	1,000	7,000	11,000	1,000	20,000	—	—	40,000
Net Domestic Production	284,000	285,000	89,000	34,000	385,000	73,000	325,000	1,475,000
Imports	180,000	90,000	166,000	5,000	—	—	—	441,000
Total Supply—								
U. S. & Possessions	464,000	375,000	255,000	39,000	385,000	73,000	325,000	1,916,000
Percent (increase or decrease) of November, 1953 estimate								-4.5
Percent (increase or decrease) of 1952-53 supply								+6.2

For the purpose of this tabulation, the following groupings have been made:

- 1/ Includes estimated ammonium sulfate content of imported and exported mixed fertilizers.
- 2/ Includes estimated ammonium phosphates, sodium nitrate, urea mixtures, calcium nitrate, cyanamid and nitrates.
- 3/ Estimated nitrogen content of natural organics used in commercial fertilizer.
- 4/ Includes estimated nitrogen content derived from solutions and ammonia in exported ammoniated super-phosphates and mixed fertilizers.
- 5/ Includes compound nitrogen solutions, ammonium nitrate solutions, ammonia liquor and aqua ammonia used for ammoniation.
- 6/ Includes nitrogen solutions and a small quantity of aqua ammonia for direct application.

*Revised.

Table 2.—PHOSPHATE*: Estimated 1953-54 Supply for Fertilizer Purposes
United States and Possessions
(In tons of 2,000 pounds available phosphoric oxide (P₂O₅))

Source	Normal superphosphate	Concentrated superphosphate	Other 1/	Total by source
U. S. Production	1,600,000 2/	500,000	250,000	2,350,000
Exports	53,000	10,000	7,000 3/	70,000
New supply, U. S. production	1,547,000	490,000	243,000	2,280,000
Imports	1,000	1,000	43,000 3/	45,000
Total Supply — U. S. and Possessions	1,548,000	491,000	286,000	2,325,000
Percent (increase or decrease) of November, 1953 estimate				-12.8
Percent (increase or decrease) of 1952-53 supply				-3.7

1/ Includes estimates for complex phosphatic materials.

2/ Includes wet-base goods.

3/ Includes P₂O₅ content of prepared phosphatic mixtures, ammonium phosphates and ammoniated superphosphates.

*Revised.

Table 3.—POTASH*: Estimated 1953-54 Supply for Fertilizer Purposes
United States and Possessions
(In tons of 2,000 pounds potassium oxide (K₂O) content)

Source	Muriate of Potash 60% and 50% grade	Sulfate of potash & Sulfate of potash magnesia	Manure Salts	Misc. & by-product materials 1/	Total by Source
Deliveries from U. S. production	1,619,000	106,000	1,000	34,000	1,760,000
Exports	40,000	6,000	—	4,000	50,000
Net supply—U. S. production 2/	1,579,000	100,000	1,000	30,000	1,710,000
Imports	95,000	15,000	—	10,000	120,000
Total Supply — U. S. and Possessions	1,674,000	115,000	1,000	40,000	1,830,000
Percent (increase or decrease) of November, 1953 estimate					-4.4
Percent (increase or decrease) of 1952-53 supply					+5.2

1/ Includes potash content of oilseed meal and by-product residues used for fertilizer, potassium nitrate and calculated potash content of mixed fertilizers, exported and imported.

2/ Net supply from U. S. production is based on prospective demand rather than capacity of the industry to deliver from domestic production. The above-ground supply is in excess of the figures shown.

*Revised.

It is generally felt that the overall tonnage of fertilizer materials moved into trade channels in 1953-54 may be slightly below the 1952-53 tonnage, but the tonnage of plant nutrients used (due to more concentrated material) may exceed the 1952-53 all-time record. This forecast indicates that the trend toward high analysis materials is continuing, and the tonnage of plant nutrients consumed—rather than that of total material—more accurately reflects fertilizer usage.

Total Plant Nutrients

The over-all supply of the three primary plant nutrients will be ample to satisfy demands. As always there will be local shortages of specific materials and, due to the reluctance of users to order in advance of time needed, some may be unable to obtain exactly the kind of fertilizer material desired.

The revised estimate of the quantity of the three primary plant nutrients—nitrogen, phosphate and potash—available for agricultural purposes for the 1953-54 season is 6.071 million tons, representing an increase of approximately 2 percent over the 1952-53 total reported deliveries of 5.957 million tons.

Nitrogen (N)

The supply of nitrogen (N) available for fertilizer purposes in 1953-54 is currently estimated to be 1.916 million tons. This estimate is based on July-January production, current rates of production, and probable contribution of synthetic ammonia facilities recently completed and those scheduled for completion during the remainder of the fiscal year. The continuing high level of imports has also been taken into consideration. During the last three years imports have made increasing contributions to the supply of nitrogen available for fertilizer purposes.

The forecast supply represents an increase of approximately 6.2 percent above the 1.804 million tons reported delivered to the trade in 1952-53. Details for 1953-54 are shown in Table 1.

Phosphates (P₂O₅)

The revised 1953-54 estimated supply of phosphates in terms of avail-

able phosphoric oxide (P₂O₅) is 2.325 million tons, representing a 12.8 percent decrease from the earlier estimate and 3.7 percent less than the 2.414 million tons reported as available in 1952-53.

Total production of P₂O₅ during the period July-December, 1953 was approximately 4.5 percent below the corresponding period in 1952 due to reasons other than productive capacity. The decrease in production of normal superphosphate accounted for this loss in tonnage. The supply of triple and complex phosphates will exceed the previous year's supply. Details for 1953-54 are shown in Table 2.

Potash (K₂O)

The revised estimated 1953-54 supply of potash available for fertilizer in terms of potassium oxide (K₂O) is 1.830 million tons. This represents a decrease of 4.4 percent from earlier estimates, but is 5.2 percent above the 1952-53 supply. The revised estimate reflects the probable trade deliveries based on prospective demands rather than actual above-ground supplies. Details for 1953-54 are shown in Table 3.

A report based upon trade deliveries of nitrogen, phosphates, and potash during 1953-54 and a forecast of the 1954-55 supply is scheduled to be issued after the close of the current season.

NFA Sponsors

Two Tours

First Tour

May 19-20-21: First tour is sponsored jointly by NFA's Plant Food Research Committee and Virginia Polytechnic Institute.

Wednesday, May 19, 1954: 8:00-8:30 Assemble — Woodrum Field (Roanoke Airport) Roanoke. 9:00 a.m. **H. W. Craun's Farm**—Route 117, 3 miles north Roanoke's city limits. 11:00 a.m. **E. R. Knick's Farm**—Route 11, 3 miles north of Natural Bridge. 12:00 Noon Lunch—Natural Bridge Hotel. 2:45 p.m. **J. L. Kanagy's Farm**—Route 12, 2 miles east of Stuarts Draft. 3:30 p.m. **Guy Stump's Farm**—Route 12, 3 miles

east of Stuarts Draft. 5:15 p.m. Arrive Charlottesville.

Thursday, May 20: 8:30 a.m. Assemble at 4th and High Street Parking Lot, Charlottesville. 9:00 a.m. **Clover Hill Farm**—Route 22, 9 miles east of Charlottesville. 10:30 a.m. **Piedmont Research Station**, Route 20, Orange. 11:45 a.m. Lunch at Orange. 2:00 p.m. **J. A. Weaver, Jr. Farm**—Route 3, 5 miles south east of Culpeper. 5:00 p.m. Arrive Winchester. 6:30 Banquet — George Washington Hotel.

Friday, May 21: 8:30-9:00 Assemble at Northern Virginia Pasture Research Station, Middleburg, Virginia. 9:00-12:00 Drs. R. E. Blaser, W. L. Griffith and T. H. Taylor will conduct the group on a tour of the grazing and small plot experiments on the station. 12:30 Lunch at Community Center, Middleburg.

Make your own hotel reservations! Notify Mr. Borden S. Chronister, Chief Agronomist, Allied Chemical & Dye Corp., P. O. Box 23, Hopewell, Virginia, if you plan to attend the banquet.

Second Tour

June 7-8-9: Second tour is sponsored jointly by NFA's Plant Food Research Committee and the University of Missouri.

June 7: 1:00 p.m. Assemble at Sarnburn Field, University of Missouri. 7:00 p.m. Banquet—Union Building, University of Missouri; Dr. William Albrecht, speaker. Hotels: Daniel Boone Hotel and Tiger Hotel.

June 8: 8:00 a.m. Leave for McCreddie Experimental Farm. 10:30 a.m. Leave McCreddie Experimental Farm. 1:00 p.m. Weldon Springs. 2:30 p.m. Leave Weldon Springs; visit Balanced Farming Farm in Perry County. Spend night in Sikeston at the Homestead.

June 9: 8:30 a.m. Leave for visit of experimental plots in the "Boot Heel" of Missouri.

Tour will break up in time to reach St. Louis or Memphis for plane connections. Make your own hotel reservations! Notify Dr. Proctor W. Gull, Manager Agronomy Section, Spencer Chemical Company, Dwight Building, Kansas City 5, Missouri, if you plan to attend the banquet.



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BAGPAK DIVISION

APFC CONVENTION PLANS

Nationally-known leaders in the field of agriculture will address the Ninth Annual Convention of the American Plant Food Council at The Homestead, Hot Springs, Va., June 10-13, according to Paul T. Truitt, President of the Council.

Speakers will include Secretary of Agriculture Ezra Taft Benson, four leaders in the field of agricultural public relations, the Chairman of the House Subcommittee on Fertilizer and Farm Machinery, and a prominent agricultural economist, Dr. Earl O. Heady, of Iowa State College.

The opening of the Convention will be preceded by a meeting of the Council's Board of Directors, Thursday night, June 10.

W. T. Wright, Norfolk, Va., is Chairman of the Convention Committee and other members are: Horace M. Albright, New York City; W. B. Copeland, Norfolk, Va.; Edwin Pate, Laurinburg, N. C.; P. J. Prosser, Baltimore, Md.; and James F. Doetsch, New York City (ex officio).

Other Committee Chairmen are: Nominating, Raymond R. Hull, Camden, N. J.; Memorial, M. S. Wright, Nacogdoches, Texas; Ladies', Mrs. John W. Hall, Chevy Chase, Md.; Golf, Dean Gidney, New York City; Ladies' Golf, Mrs. Ed Kolb, Ridgewood, N. J.

The Convention will begin on Friday, June 11, with the annual address of the Council's President, Mr. Truitt. He will be followed by four speakers on a panel program devoted to Agricultural Public Relations, with Robert H. Reed, Editor, COUNTRY GENTLEMAN, and President of the American Agricultural Editors' Association, as moderator.

Other speakers on the panel will include:

Stanley Andrews, Managing Director, National Project in Agricul-

tural Communications, Michigan State College.

J. M. Eleazer, Extension Information Specialist, Agricultural Extension Service, Clemson Agricultural College, Clemson, S. C.

Ed Lipscomb, Director of Public Relations, National Cotton Council of America.

Two outstanding farm magazine editors, representing the winners in the "Soil Builders Award for Editors" contest sponsored by the Council, will be honored on Friday morning, June 11. The awards will be presented by Louis H. Wilson, Secretary and Director of Information of the Council.

The "Soil Builders Award for Editors" contest was conceived and planned in cooperation with the American Agricultural Editors' Association for the purpose of recognizing both editors and their staff members "who have rendered outstanding service as soil builders and, as such, builders of a more sound and profitable farming system." National judges for the contest are:

Joseph T. Brown, President, National Association County Agricultural Agents; Waters S. Davis, Jr., President, The National Association of Soil Conservation Districts; Roger Fleming, Secretary-Treasurer, American Farm Bureau Federation; Wesley Hardenbergh, President, American Meat Institute; Herschel D. Newsom, Master, The National Grange; Roderick Turnbull, Editor, WEEKLY STAR FARMER; and Robert Wall, President, National Vocational Agricultural Teachers Association, Incorporated.

Speakers on Saturday, June 12, will be:

Rep. Charles B. Hoeven (R-Iowa) Chairman, House Agriculture Subcommittee on Fertilizer and Farm Machinery; Secretary of Agriculture

Ezra Taft Benson; and Dr. Earl O. Heady, Professor of Agricultural Economics, Agricultural Economics and Rural Sociology Department, Iowa State College at Ames, Iowa. The Council's annual business meeting will follow with reports from the Credential and Nominating Committees, followed by the election of eight new members to the Board of Directors.

An after-dinner reception, sponsored by the Southwest Potash Corporation, on Friday evening and a Hospitality Hour, courtesy of the Potash Company of America, on Saturday evening, will be features of the Convention.

The Convention will be brought to a climax on Saturday evening, June 12, at the annual banquet with an address by Dr. Paul D. Sanders, Editor of THE SOUTHERN PLANTER.

More than 550 of the nation's leading manufacturers of fertilizer and producers of fertilizer materials, together with leaders in the field of agricultural education and research, will attend the 1954 Convention.

Canadian Plant Food Producers To Meet

The ninth annual convention of the Canadian Plant Food Producers will be held at the lovely Manoir Richelieu, Murray Bay, Quebec, July 1-5. The hotel is situated on the north shore of the St. Lawrence River, 90 miles east of the city of Quebec, 275 miles northeast of Montreal, and is equipped for luxury service. A private fishing camp on private lakes, a stable of fine riding horses, excellent tennis, golf and heated salt water swimming are among the sports offered.

C. W. Jarvis, Secretary-Treasurer of the association may be reached at Canadian Industries Ltd., Agricultural Chemicals Dept., 3434 Dundas St., West, Toronto 9, Canada.

Sanders



Reed



Lipscomb





Congressman Cole



Secretary Benson

NFA SPRING PROGRAM

Secretary of Agriculture Ezra Taft Benson and Congressman W. Sterling Cole, chairman of the Joint Committee on Atomic Energy of the U. S. Congress, will be the principal speakers at the annual spring convention of The National Fertilizer Association at The Greenbrier Hotel, White Sulphur Springs, West Virginia, June 14-16.

Other features of the program, according to Russell Coleman, NFA president, include symposia on sales development and on the granulation process in the production of fertilizer. Panels of outstanding authorities in these fields will participate in the symposia, which are being sponsored by NFA's Plant Food Research Committee. Moderator of the panel on sales development will be H. H. Tucker, President, Coke Oven Ammonia Research Bureau. Edwin C. Kapusta, NFA's chemical engineer, will moderate the panel on granulation.

The annual convention dinner and a cabaret party will high light a full schedule of social activities. Of particular interest to the ladies will be a garden party and a bridge and canasta party. Golf, tennis and horseshoe tournaments are planned for both men and women.

The annual election will choose directors of the Association to succeed members of the Board whose terms will have expired. Following the last general session on Wednesday, June 16, the new Board of Directors will hold an organization meeting for the purpose of electing

officers for the coming year. Present officers are: Chairman of the Board, Louis Ware, President, International Minerals & Chemical Corporation; Vice-Chairman of the Board, E. A. Geoghegan, Vice-President, The Southern Cotton Oil Company; President, Russell Coleman; Vice-President, W. R. Allstetter, and Secretary-Treasurer, William S. Ritnour.

Congressman Cole, a leading advocate of the development of atomic energy for peaceful purposes, has been chairman of the Joint Committee on Atomic Energy since April 1, 1953, and has been a member of this important Committee, composed of nine Senators and nine Representatives, since its creation under the Atomic Energy Act of 1947. He also is a member of the House Armed Services Committee and of the Republican Policy Committee.

When elected to Congress from New York's 37th District in 1934, Mr. Cole was the youngest Republican member of the 74th Congress. His home is in Bath, N. Y. He holds the rank of Lt. Commander in the Naval Reserve.

Secretary Benson has been prominent in agriculture for many years. Starting as county extension agent in Idaho in 1929, he later served as extension economist and marketing specialist with the Idaho State Extension Service, and was instrumental in the organization of the Idaho Cooperative Council. In the spring of 1939 he was appointed executive secretary of the National Council of Farmer Cooperatives, a federation

of 4,600 cooperative groups. Since then, he has served on several advisory committees and national boards in the field of agriculture, including the American Institute of Cooperation; Farm Foundation; National Agricultural Advisory Committee under President Franklin D. Roosevelt; National Farm Credit Committee, and U. S. delegate to the first International Conference on Farm Organizations.

He also has been active in church affairs since his youth, and is on leave from his position as a member of the Council of Twelve of the Church of Jesus Christ of Latter-day Saints. He is a great-grandson of the Mormon apostle, Ezra Taft Benson, one of the original pioneers who entered the Salt Lake City Valley with Brigham Young on July 24, 1847.

As Secretary of Agriculture, Mr. Benson has instituted a complete re-organization of the Department along functional lines. Under his direction, a proposed revision of the national farm program has been worked out which is built around a system of flexible farm price supports which would adjust the level of price support to the supply situation. This proposal currently is pending before the Congress, and has stirred considerable controversy among Congressional representatives of both parties.

A strong supporter of research and education, Secretary Benson has advocated increased appropriations for these purposes.

W. F. Price, Swift & Company, and Mrs. Louis Ware, wife of the NFA board chairman, head the hospitality committees for the convention.

Committees in charge of social and recreational activities and their chairmen include: Ladies' Bridge and Canasta Party, Mrs. J. A. Naftel, wife of the manager of the Plant Food Division, Pacific Coast Borax Co.; Men's Golf, John W. Hall, Potash Company of America; Ladies Golf, Mrs. W. B. Porterfield, wife of the assistant sales manager of United States Potash Co.; Tennis, Joseph Mullen, Jr., Mathieson Chemical Corp; Horseshoes, A. A. Schultz, Reading Bone Fertilizer Company.

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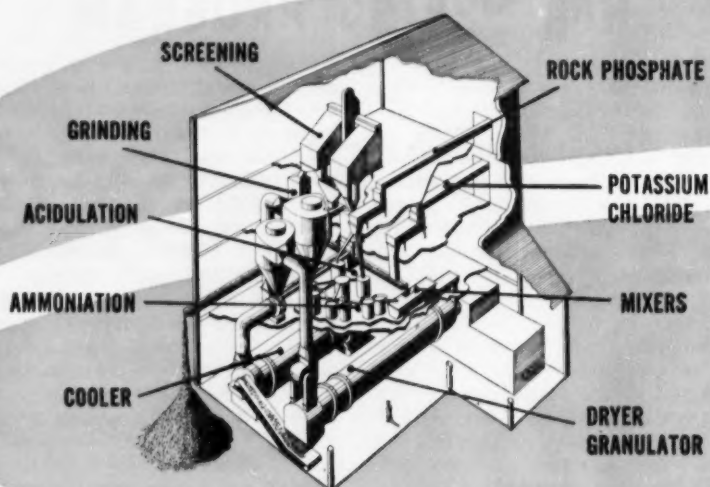
Phosphate rock grinding is unnecessary.

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Can produce end product in any sized granules desired.

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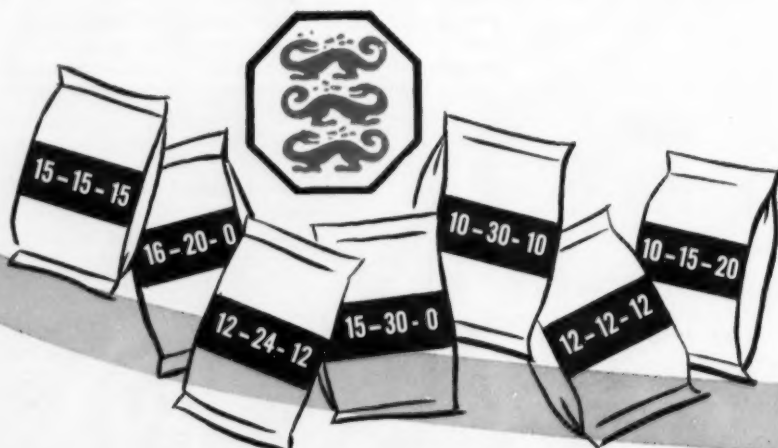


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It's jam-packed with nourishment value that fattens broilers and fryers quickly, and keeps egg production high. Feeds like these are grown in rich, well-fertilized soil.

Potash, a particularly effective component of modern commercial fertilizers, not only enriches the soil, but improves crop resistance to disease, producing healthier crops and larger yields.

In the mixing of these fertilizers, potash produced by the United States Potash Company has two distinct advantages. It has the highest K_2O content and is free-flowing and non-caking—important factors in fertilizer production.

Potash, as an investment, amounts to hardly more than "chicken feed"—yet pays rich dividends all through the agricultural economy.

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An Invitation . . .

Guaranty Seed Co., Bunkie, La., at the request of a number of interested fertilizer manufacturers, invites the fertilizer industry to a public demonstration of their application of the TVA-funnel mixer to the manufacture of ordinary superphosphate, Tuesday, June 1, 1954, at Bunkie. The Fertilizer Equipment Sales Corp., 130 Krog Street, Atlanta, Georgia, are co-hosts.

The installation of the TVA funnel type Superphosphate mixer at the Bunkie Superphosphate Company, Bunkie, La., has demonstrated the economic feasibility of a small mill operating a superphosphate plant.

The storage building is of the simple "A" frame type designed to hold approximately 3000 tons of super. The decision was made to

have acid storage but not to have rock storage. This requirement led to the desirability of being able to use one carload of rock per day. The den is of the common dragline type holding about 130 tons of mixed superphosphate.

In order that one carload of rock per day could be used the design operating rate of the mill was set at 20 tons per hour. In practice an

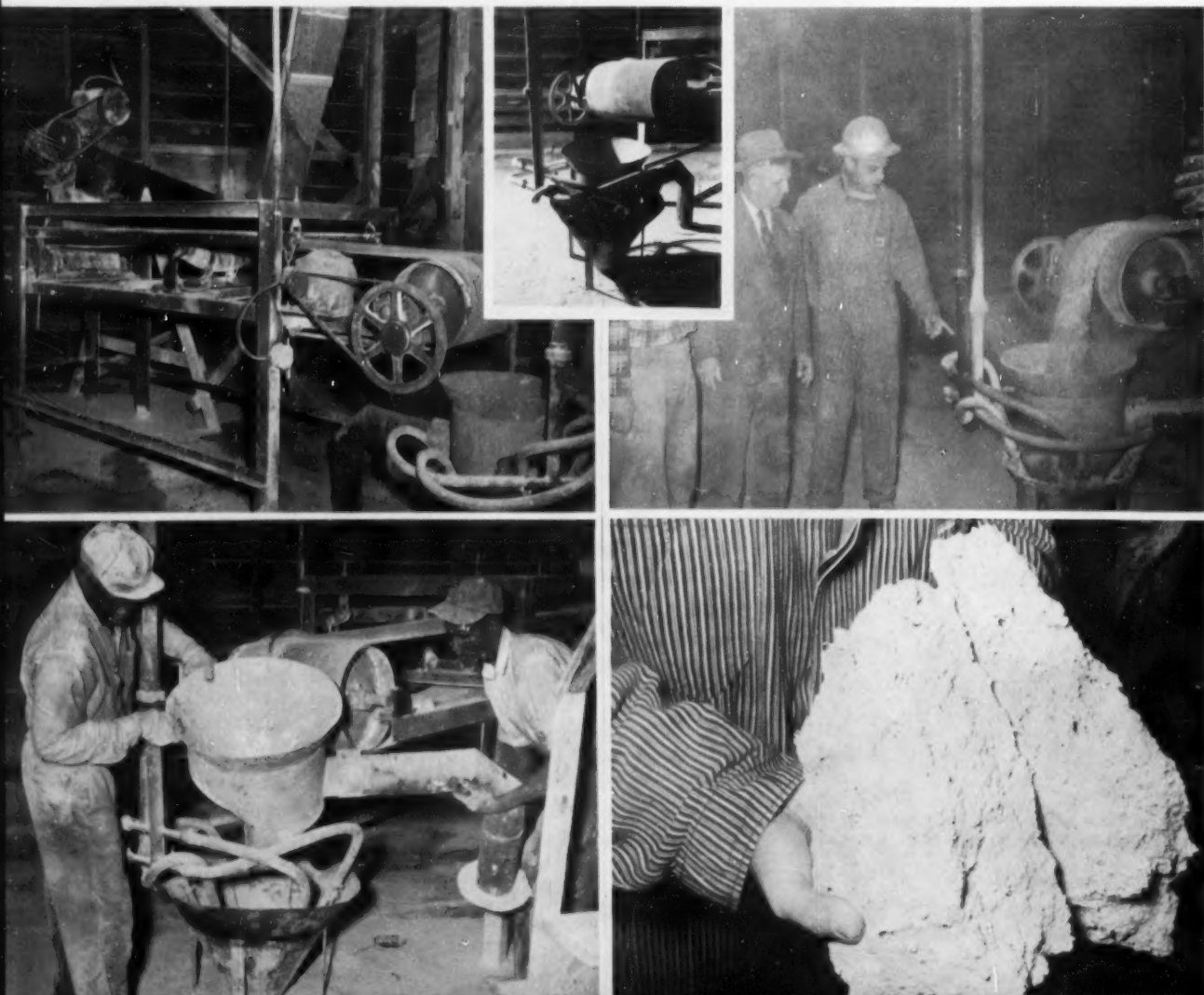
actual rate of manufacture of 23 tons per hour worked out to be the best operating speed.

The machines were designed with the simplest possible arrangement to give stable operation without requiring complicated automatic controls, and so that average mill labor could operate them and small town facilities could provide all necessary maintenance.

The Acid and water used is measured through magnetic indicating "Flowrators." The magnetic indicating type was picked so that refinery "spent" acids could be used. The rock is fed by a simple variable speed screw feeder. The quantity of rock is measured by passing the rock over a simple continuous scale.

The first picture includes all equipment, except conveyor. The insert shows the conveyor discharge into the funnel. Top right, Roy Fontain and Charlie McDaniel watch it at work. Below,

shows how light and easy to handle is this equipment. And finally, a close-up of the final product.



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The scale is used for indicating the quantity of rock being fed only, it does not have any connection with the feeder. Any variation in the feed must be changed manually. The successful use of the screw feeder was made possible by stabilizing the condition of the rock at the screw intake.

A temporary funnel mixer was made of 16 Gage low carbon steel. This was to allow for changes in the field if it became necessary to modify it. It is planned to replace this funnel with a stainless steel one. Originally a fume hood was provided to remove any fumes that might come from the mixer. This was found unnecessary and has been removed. The accompanying pictures are of the temporary funnel.

In the operation of the plant two men are used. One man is used to insure continuous flow of rock from the railroad car and the other man operates the mill.

The funnel type mixer offers a fertilizer plant with large or small superphosphate requirements at low cost, easy to maintain type of super plant. The funnel appears to be adaptable to any type of den and to the use of any acid or blend of acid normally used in superphosphate manufacture.

The techniques and procedures used in the operation of the plant were formulated by C. L. McDaniels of Lion Oil Company. All Equipment and design of the mill were furnished by Fertilizer Equipment Sales Corporation, Atlanta, Ga.

supply, particularly in the midwest. Prices remain unchanged.

SULPHATE OF AMMONIA: The strong recent demand has slackened somewhat but movement is expected to be steady through April. Prices remain firm.

NITRATE OF SODA: Movement of both imported and domestic material continues in good seasonal volume and there has been no change in prices.

CALCIUM AMMONIUM NITRATE: Stocks at ports continue adequate to meet the demand for this 20.5% Nitrogen which is currently selling at \$51.25 per ton, bagged, f.o.b. cars at port.

GENERAL: In certain parts of the southeast, peak demand for mixed goods has tapered off. It may easily develop that the volume of mixed goods and other fertilizer materials will exceed original expectations of most fertilizer manufacturers. Triple Superphosphate, Ammonium Nitrate and Sulphate of Potash continues somewhat short of demand.

Green Pastures Tour Covers 3 Days

The Kentucky Green Pastures Tour for 1954 is covering six stops in a three-day program, May 4-6. Visited are the Willis Stout Farm, Jefferson County; Bennett Brothers Farm, Bullitt County; Edward Bickett Farm, Meade County; Goodman Brothers Farm, Breckenridge County; Richard Smith Farm, Hopkins County, and a banquet at the Owensboro Hotel the second night.

Crop, Soil Scientists Meet St. Paul, Nov. 8-12

The 1954 meeting of the American Society of Agronomy and the Soil Science Society of America will be held at St. Paul, Minn., November 8 to 12, it has been announced by C. J. Willard and Emil Truog, respective presidents of the two societies.

Headquarters of the 1954 convention will be at the Saint Paul Hotel, with tentative arrangements calling for most soil meetings to be held at this location. Crop science sessions have been tentatively scheduled for the Lowry Hotel, while agronomic education meetings are to be held in the St. Francis Hotel.

COMMERCIAL FERTILIZER

MARKETS

ORGANICS: Demand for fertilizer organics is rather quiet except for fair activity in Castor Pomace. Domestic Nitrogenous producers have limited quantities at current prices of \$3.50 to \$4.50 per unit of Ammonia, bulk, f.o.b. domestic production points. Imported Nitrogenous is indicated at around \$4.10 per unit of Ammonia, bagged, CIF Atlantic ports.

CASTOR POMACE: New Jersey production is now priced at \$27.00 per ton in bags f.o.b. producer's works. Texas and Oklahoma Castor Pomace is strengthening in price and is currently offered at around \$13.00/\$14.50 in bulk and \$15.00/\$17.50 bagged f.o.b. producer's works. This material is guaranteed minimum 6.25% Ammonia.

DRIED BLOOD: Offerings are extremely light and nominal and prices at New York and Chicago on underground sacked Blood are \$8.25 and \$9.00 respectively.

POTASH: Domestic Muriate of Potash shipments have probably passed their peak for the season although movement is still heavy. No change in prices has been noted. Sulphate of Potash continues rather tight in supply but Imported sup-

plies are expected momentarily at Atlantic ports at a price around 95¢ per unit f.o.b. cars.

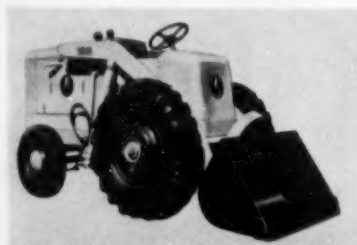
GROUND COTTON BUR ASH: Interest in this material continues steady and supplies adequate for current demand. Analyses have been running 33% to 38% K₂O. Delivered costs of this form of Potash, primarily in the form of Carbonate of Potash, approximate the delivered cost of Domestic Sulphate of Potash.

PHOSPHATE ROCK: Domestic demand continues relatively steady and stocks are comfortable. Prices remain steady.

SUPERPHOSPHATE: Normal Superphosphate, 20% grade, continues in adequate supply and prices relatively steady. Triple Superphosphate is in tight supply and producers are several weeks behind in their shipping schedules.

AMMONIUM NITRATE: Demand continues to exceed the available

The Frank G. Hough Co. has recently announced the introduction of new models of the "HA" and "HAH" front-end shovel-loaders with torque-converter-drive as standard equipment. In addition, the "HAH" model is equipped with power steering. The "HA" has a "pay-load" capacity of 16 cu. ft. and a "struck-load" capacity of 12 cu. ft. The "HAH" has a "pay-load" capacity of 24 cu. ft. and a "struck-load" capacity of 18 cu. ft., an increase over the former model.





Around the Map

RED FACE DEPT

In our issue of April we made an error regarding the Southern Cotton Oil property at Chester, S. C. R. A. Oliphant has purchased the property, including buildings and equipment. Buildings are being enlarged, remodeled and sprinklered, to be used for public cotton and grain storage, as Oliphant and Company. The machinery has been sold to Kentucky Fertilizer Company, Winchester. Mr. Oliphant is Manager of Victor Fertilizer at Chester.

ALABAMA

Alabama By-Products Corporation and **Hercules Powder** are jointly undertaking an anhydrous ammonia plant in the Birmingham area with initial production of 45,000 annual tons. Sales will be made to both agriculture and the steel industry.

ARKANSAS

Tri-State Chemical, Springdale, should be in production by the end of this month, according to manager

Frank Sizemore. Plant and equipment run to more than \$100,000 investment. Some 10 grades of fertilizer will be produced by some 30 people.

CALIFORNIA

Brea Chemicals, Brea, early last month began operations in their new \$13,000,000 ammonia plant. By the end of this month they expect it to be revved up to the full capacity of 235 daily tons. They are building a \$2,500,000 nitric and ammonium ni-

trate plant on the same site. Brea is a subsidiary of **Union Oil of California**.

At the opening of the ammonia plant, Brea president, **Homer Reed**, presided and officials of the company explained operations to the visitors.

DELAWARE

Hercules Powder April 8 officially opened their new pesticides research laboratory at Wilmington, where they expect to be able to screen more than 300 formulations a month, according to **Paul Mayfield**, general manager of their Naval Stores department. **Dr. E. N. Woodbury** heads the staff of 18, reporting to **Richard T. Yates**, in charge of sales and research for the Hercules pesticides group.

FLORIDA

Merchants Fertilizer and Phosphate Co. of Pensacola was totally destroyed by fire of undetermined origin April 7. The fire started around midnight and as the plant was located just outside the city limits, fire fighting facilities were not available in time to check the blaze, which expanded rapidly over the wood frame building.

Fire departments from Pensacola and several neighboring communities did arrive in time, however, to prevent the spread of flames to a building in which a large supply of dynamite caps were stored, and a brave engineer rushed a switch engine into the flames and pulled out several cars of ammonium nitrate.

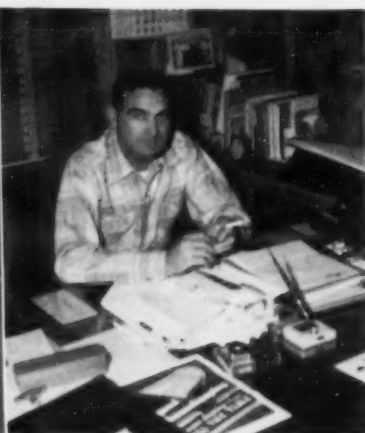
Moultrie J. Clement, president says plans are to rebuild as rapidly as possible.

Exterior view of the new addition to the F. S. Royster Guano Co. plant at Bessemer, Ala. Manufacturing is done in the older section of the plant and materials are carried to the new building through the enclosed conveyor across the top of the photograph. Bagging and shipping is conducted at this building. Note the covered loading shed which accommodates both trucks and rail cars. The brilliant outdoor sunshine didn't penetrate the walls of the building, and we were unable to use any of the interior pictures made on our Saturday-morning visit to this up-to-date new facility.



This is the F. S. Royster Guano Co. plant at Macon, Ga. The day we went by to see O. O. Banton, Southern district superintendent, the girls in the office told us he had been out in the plant all day with the crew that was trying to get a broken-down piece of equipment back in operation. One look at all these waiting trucks convinced us that this wasn't the time for a how-do-you-do, at least not under the circumstances. We did see E. A. Hall, plant manager, for just a second as he hurried past . . . but he didn't slow down long enough for a picture. If we'd snapped the shutter, all the film would have showed was a streak across the picture where he'd passed. It was REALLY a busy day.





R. F. "Bob" Terhune of Burley Belt Plant Food Works at Lexington, Ky. caught this sailfish last year while fishing in Florida. No sooner had he landed it than his wife hooked another . . . yes, it was even bigger than Bob's. So he's not so sure he'll take the Mrs. along on his next fishing trip. Anyhow, this one looks fine on the wall of their new office.

This picture of Gene Van Deren, vice-president and treasurer of Blue Grass Plant Foods, Inc., Cynthiana, Ky. should have been in color. Black and white can't do that justice to that pastel plaid sport shirt he was wearing on the Saturday afternoon we visited his office.

Barney Tucker, manager of the Knoxville Fertilizer Co. plant at London, Ky. was working late the day we took this picture. Actually, we had no idea of finding him there as we drove up to the office, but there he was; and even when we left, some time later, he still had a few matters to wind up before leaving that night.

R. F. Terhune and A. N. Peck, Burley Belt Plant Food Works, Lexington, Ky. have every right to be proud of that fertilizer bag; it's an attractive combination of brown, yellow and green. The morning we were in to see them, they certainly had troubles, though; the railroad had failed to properly spot some cars they were planning to unload that day, and to top it all off, an ammonia pipe in the plant had burst. Well, at least the weather was good, and there were customers constantly dropping in.

The folks at Cooperative Fertilizer Service in Winchester, Ky. had already locked up and gone home when we stopped at their place on Saturday afternoon. Not to be outdone, we just snapped this picture of the plant and office (the white building in the foreground).

This picture of Everett Crady was made on an "unexpectedly" slow day during the season at North American Fertilizer Company, Louisville. A camera enthusiast himself, he told an amusing story about one of his shooting experiences. It seems that in taking some pictures for a friend, he got involved with a couple of school girls who were so interested in becoming models that they talked him into shooting several rolls of film—all in color—not only for that occasion, but several others. I think he had to leave town in order to get away from them.

Noticing a car outside the office, we tapped at the door of Kentucky Fertilizer Works' office at Winchester, Ky. J. B. McConaughy opened the door and let us in, explaining that he had locked up on this Saturday afternoon because of a series of robberies in the neighborhood recently. He abandoned last-minute work on his income tax return (it was March 13) to show us through the new wing of the plant, increasing its capacity greatly. And he told us of other improvements to come. As soon as the season closes, they will begin installation of a new one-ton Atlanta Utility mixer, which will be set up so that it is centrally located beside the conveyors joining the new and old sections of the building. The present half-ton mixer will remain in place to help out during the rush times. Installation of the new mixer, which is already on hand, will take place in June.

We were disappointed not to find John Miller of Price Chemical Company, Louisville, or R. A. Allgood of Southern States Cooperative, on a quiet Saturday morning during the spring season, but everything was ship-shape at both plants with principals enjoying a pleasant weekend.

Southern States had just completed concrete walks between these new buildings; around the office in foreground the low wall is step one in a beautification program.



COMMERCIAL FERTILIZER

Representatives of newspapers and magazines, representatives of the **Atomic Energy Commission**, feed manufacturers and officers of **International Minerals & Chemical Corporation** made an inspection tour of International's new Bonnie phosphate chemicals plant near Bartow, April 2.

Louis Ware, president of the corporation, told the group that the new \$15,000,000 plant is the first plant in operation in Florida to produce uranium compounds for the Atomic Energy Commission. Following the tour of Bonnie plant, guests attended a luncheon at the International Pavilion and Park at Mulberry. In the afternoon the group visited the corporation's Noralyn mine and refinery where they saw phosphate ore mined, washed, refined by flotation, graded, and dried ready for shipment.

Co-hosts with Mr. Ware for the inspection of the Bonnie plant were **Howard F. Roderick**, vice president of International in charge of the Phosphate Chemicals Division, and **J. A. Wilson**, manager of the plant.

Co-hosts with Mr. Ware for the tour of the Noralyn mine and refinery were **George W. Moyers**, vice president in charge of International's Phosphate Minerals Division, and **F. B. Bowen**, manager of Florida phosphate minerals operations.

Kennicott Copper's Bear Creek Mining Company has permission of Lake County officials to conduct test drillings along county roadsides to find out if "commercially profitable mineral deposits" can be found.

Florida Internal Improvement Fund trustees are planning to lease the right to "explore, develop and mine phosphate" from the bottom of Banana Lake, near Lakeland.

ILLINOIS

Aylward Fertilizer Co., Sullivan, is producing liquid mixed fertilizers, and is said by its president, **Edwin Aylward**, to be the only plant in Illinois which does so. A 40 by 100 foot plant houses office, mixing and metering facilities and storage for

materials, with a tank capacity in and out of the building totalling 123,000 gallons. Production maximum is 10 hourly tons. A soil testing laboratory is still to be completed.

Illinois Farm Supply Company's

Tuscola plant has been authorized by the board and while construction contracts have not been let, president **Fred E. Herndon** expects construction to begin by early Summer, on a site adjacent to that of **National Petro Chemical**, from which nitrogen and sulphuric will be obtained. 50,-

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Triangle Brand Copper Sulphate has been recognized as an effective agricultural chemical for more than sixty years. In sprays (where Bordeaux mixtures are the most reliable), in dusts (if you prefer them) and in fertilizers (for additional enrichment of the soil) Triangle Brand Copper Sulphate has proved itself worthy and dependable. Try these Triangle Brand forms of Copper Sulphates:

INSTANT (powder) for quick and efficient mixing of Bordeaux sprays.

SUPERFINE (snow), SMALL or LARGE CRYSTALS, all containing 25.2% metallic copper.

BASIC Copper Sulphate in powder form, containing 53% metallic copper.

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J. I. "Johnny" Allman, who heads Southern Cotton Oil Company's fertilizer sales for the Georgia District. A native of Toccoa, Ga. where his father was superintendent of schools, he graduated from Georgia Institute of Technology in 1924, and came into the industry just two years later. In 1931 he joined SCOCO and had his office in Atlanta until May, 1953 when the district office was moved to Macon, Ga. The Allman family moved from College Park, in suburban Atlanta, to 2770 Northwoods Drive in Macon. In addition to Mrs. Allman, there is a daughter who has been teaching since her graduation from the University of Georgia last year, and a son who is a student at Presbyterian College, Clinton, S. C. Well-known throughout the company, Johnny Allman promptly receives inter-office memos addressed simply to "Mr. Johnny." A fresh-water fisherman, he doesn't have much time for this diversion these days. Scanning a season characterized by adequate tonnage without adequate price, he surmised that "any plant in Georgia—which handles its accounting properly—will NOT show a profit on mixing this year."

Belton Roach, plant foreman at McConnell & Co. in Royston, Ga. was showing us how their new mixer works when we took this picture. They designed the four-hopper unit themselves and had a metalsmith cut and weld the steel plate for them. Castings for the valves were made by a foundry from drawings the fertilizer company submitted. A three-man team keeps the materials moving to the bagging unit with the self-designed mixer and a new elevator.

Sam McGowan, manager of Southern Cotton Oil Company's plant at Cartersville, Ga. wasn't concerned as the March days rolled past, since the season in that area customarily doesn't get under way until after April 1. But he was ready with copies of the state cotton acreage allotment increases for any who might wish to consult them. Sales, according to Mr. McGowan, have shown a steady increase for the past three years, ever since the new section of the plant was completed.

000 annual tons of mixed fertilizer is the projected plant capacity.

KENTUCKY

Southern States Cooperative, Lebanon, during an inventory of their warehouse stocks, found themselves short 14 tons of fertilizer. As a result, 3 men are on trial, one of them a high city official. The fertilizer was found cached in various barns, whose owners had no knowledge of its presence and cooperated in bringing the 3 to trial.

LOUISIANA

Louisiana Liquid Fertilizer, whose main offices are in Shreveport, has established branches at Lake Charles and Gueydan, in charge of Calvin Billings.

MICHIGAN

Michigan Farm Bureau Services,

Austin Cooke, manager of Swift & Company's Plant Food Division at Harvey, La. is proud of the new office building they occupy now. That air conditioning feels wonderful when the mercury climbs in the humidity of the Mississippi River's banks

The picture of the new office building with the plant in the background was taken from atop one of the famous levees; in

Inc. have opened their new Kalamazoo plant, a thoroughly modern, "push-button" operation. Trial runs are in progress. An auger carries material from pits to an elevator, and to a conveyor which delivers to proper bins. Automatic batch weighing equipment takes over and the first hand to touch the material is that of the man who adjusts the bags on the pallets at the end of the production line. Phil Turner and Dick Cocks are, respectively, Superintendent and Assistant.

MINNESOTA

Minnesota Liquid Fertilizer, Minneapolis, is planning a program of expansion which will nearly treble its service area in southern Minnesota. In its first year the concern served 6300 square miles. This year its facilities will cover 18,000 square miles. New bulk plants in Kenyon,

the foreground are visible some of the stairs that carried us to this vantage point.

E. M. Harold, manager of the Gretna Division of Davison Chemical Company at Gretna, La. expressed the same concern most of the rest of us felt about the spring season. His problems, however, have a little different twist with a plant so near Louisiana's rice bowl.

Blooming Prairie, Kasson and Madison bring their total to 21, each with 30,000 gallons of storage tank. The company is headed by B. W. Smith.

MISSOURI

Commercial Solvents' St. Louis district sales office has been moved to 7890 Folk Avenue, St. Louis 17. The new phone number is Mission 5-3330. John R. Post is St. Louis district manager.

Farm Fertilizer Service, Columbia, is setting up a \$25,000 expansion program to give them a modern and enlarged mixing plant, with more storage and gravity handling of bulk materials. The plant is below the track level and can be readily dumped into hoppers by a small loader. The same loader again moves them to the one-ton mixer, from which the completed product is piped either to bagging or direct to trucks. Jim Judah is manager.

MISSISSIPPI

Mississippi Chemical, Yazoo City, will market \$150,000 of the \$750,000 of bonds authorized two years ago. They have joined hands with the ASE to sponsor a 4-H corn production program.

NEW YORK

Chemical Enterprises, Inc., New York, reported it has exercised an option to buy all the outstanding stock of nine fertilizer and equipment distributing companies. Daniel B. Curll, Jr., president, said all will operate as affiliates of Chemical Enterprises and that the purchase price totaled more than \$1 million. The nine are Dixie Liquid Fertilizer Co., Monroe, La.; Louisiana Liquid Fertilizer Co., Shreveport, La.; Tex-



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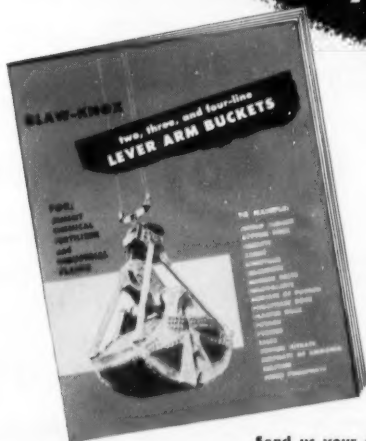
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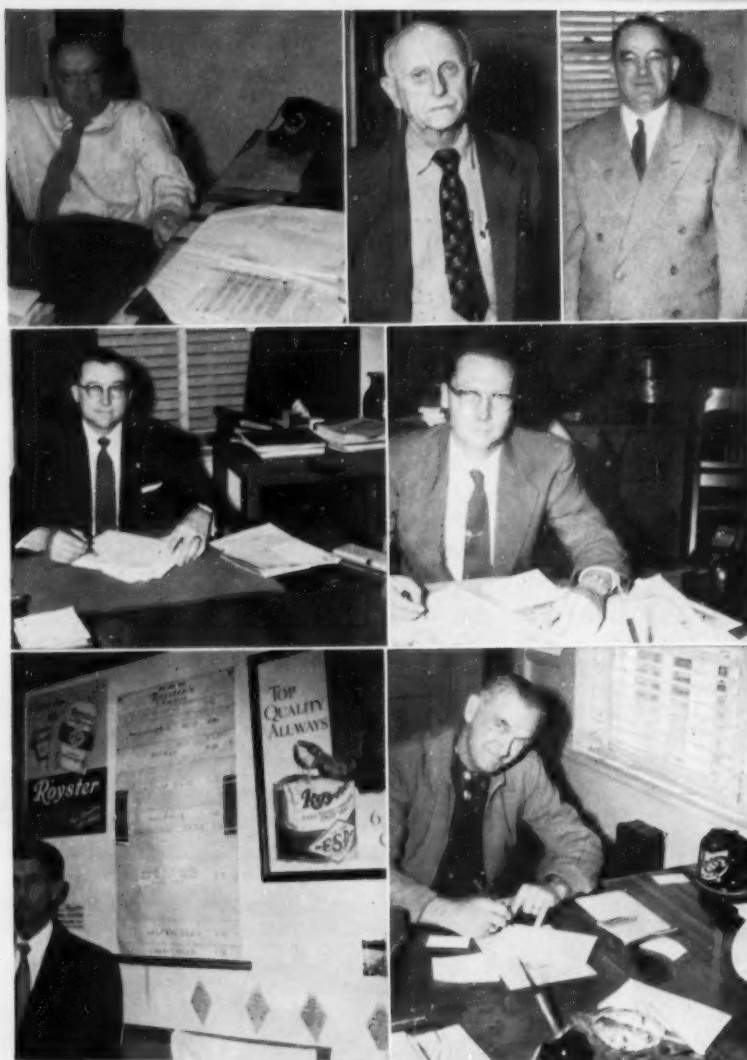
One kind of tank—the rubber-lined tank—has been proved most economical and dependable. Acme-Fisher has had long experience in this field, supplying leading chemical companies with standardized acid-handling equipment.

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Alfred Jenkins, president of Delta Cotton Oil and Fertilizer Co., Jackson, Miss. expressed less concern over the slow season than many of the men we talked with. Not optimistic, but confident, he feels that there's always going to be some fertilizer sold—and that Delta will sell its share. The new loading dock added to their plant in December helped greatly in moving the fertilizer that was sold this year.

N. E. Gaston, secretary-treasurer of Gulfport Fertilizer Company in Gulfport, Miss., gave us a liberal education on the specialized fertilizer requirements of the tung tree. This plant furnishes much of the fertilizer requirements of Mississippi's Pearl River County, where half the nation's tung nuts are produced.

J. T. Caldwell, Jr., manager of the Jackson, Miss. sales office of Virginia-Carolina Chemical Corp., would have felt more natural on the "taking" instead of the "taken" end of our camera. He commented that he was an amateur photographer and used a Speed Graphic Camera like ours for his hobby. We later learned, from someone else, that he is president of the Jackson Photographic Society and recently had a showing of some of his pictures in the lobby of the Mississippi Electric Power building at Jackson.

E. L. Pierson, manager of Mathieson Chemical Corporation's office at Jackson, Miss. was one man who felt the year would end up showing a substantial increase over last year. To emphasize his opinion, he illustrated a couple of good sales techniques for high analysis fertilizers. With that kind of enthusiasm, it would be difficult even to think of a poor year.

J. L. Woodall, manager of the fertilizer department at Mississippi Federated Cooperatives in Jackson, told us he had only one wish: that there would be a final and complete end to all confusing reports about acreage allotments for crops.

W. L. Ashley, assistant manager of the sales office of F. S. Royster Guano Company at Jackson, Miss., was so anxious for us to get a good photograph of their well-kept bulletin board that he almost squeezed himself completely out of the picture.

C. A. Allen, plant superintendent at Virginia-Carolina Chemical Corporation's Jackson, Miss. plant, was busy dashing off a lunchtime letter when we interrupted him long enough to get this shot.

COMMERCIAL FERTILIZER



H. N. Mills, Tennessee Corp., Lockland, Ohio was really doing some heavy calculation when we dropped in to visit and get this picture. But he stopped long enough to tell us how Cincinnati's industrial expansion had surrounded their plant location and had turned this little community into a municipally-wealthy manufacturing city. And from the looks of things around there, it's apparent that the growth hasn't stopped.

H. O. Beatty, manager, and Herb Houghtaling, superintendent, of The American Agricultural Chemical Company plant at Cincinnati were a busy pair the afternoon we were there. Things were really buzzing, but these two hadn't lost their sense of humor. The instant when the camera's shutter snapped was, as we recall,

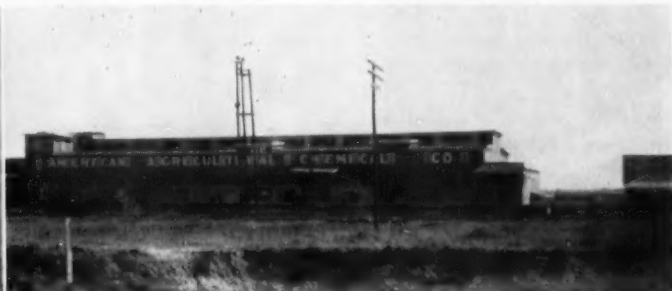
the only one in that half-hour that each didn't wear a broad grin.

If you look carefully, you can see a car-key holder in the hands of A. J. Darfus, manager of the Virginia-Carolina Chemical Corporation's Cincinnati sales office. We walked in just after the office had closed and he was ready to leave for home, but his unhurried hospitality kept us there for a pleasant chat.

Jack K. Lindsey, district sales manager for the Plant Food Division of International Minerals & Chemical Corp. at Cincinnati, was another who really rolled out the welcome mat when we called on him. We had intended to take only a couple of minutes of his time, but the interesting conversation and the air conditioning made the time slip by awfully fast.



George W. Gage, president of the company, wouldn't get into the picture, but we did manage to line up W. H. Farmer, treasurer, and A. B. Jackson, vice-president at Anderson Fertilizer Company, Anderson, S. C. Things had begun to move in that area, but the season hadn't yet reached the proportions these fellows hoped for.



The day we picked to call on Jack Rogers, manager of The American Agricultural Chemical Company operation at Spartanburg, S. C. turned out to be the day he had a sales meeting in progress. So there was nothing left to photograph but the plant, and here it is.

ammonia Gas, Inc., McAllen, Texas; **Texammonia, Inc.,** Elsa, Texas; **Palouse Ammonia, Inc.,** Endicott, Wash.; **Whitman Ammonia Co.,** Oakesdale, Wash.; **Columbia Ammonia Co.,** Huntsville, Wash.; **Agricultural Equipment Co.,** Endicott, Wash.; and **Agricultural Wholesale Equipment Co.,** Shreveport, La.

NORTH CAROLINA

Cherry Chemical Co., Cherryville,

has been chartered at \$25,000 to deal in insecticides. Incorporators: **Karr C. Beam, Everett Ellington and Wade H. Stroupe.**

OKLAHOMA

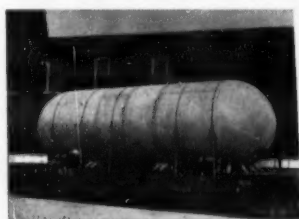
Oklahoma Liquid Fertilizer Corporation, El Reno, has been chartered at \$25,000, 50-year period, by **Paul G. Kiebmann, J. E. Bass, Jr., and Boyd Halverson.**

PENNSYLVANIA

Cornwell Chemical, Cornwell Heights, has put into production its expanded sulphuric acid facilities.

TENNESSEE

M. C. Boyle Phosphate has put into production its new plant at Dean's Switch and is mining on the plant property. A \$175,000 washing plant at Shady Grove is due to be in production at the end of the month.

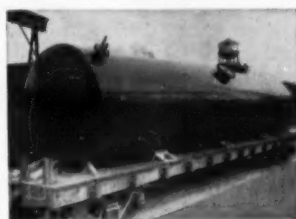


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Newnan, Ga.



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8'-6" Diameter x 38'-6" Long
16,500 Gallons



This group at Knoxville Fertilizer Company in Knoxville, Tenn. is admiring a color photograph held by J. W. Dean, president of the company. The picture shows a row of prize tobacco grown with the company's "complete fertilizers." The group in this photograph is (left to right) Bennett Brown, Scott Dean, J. W. Dean, Carter Myers and A. B. Crawley.

International Minerals & Chemical now have their \$430,000 mixing plant at Clarksville operating full scale with about 40 employees.

UTAH

Tears Engineers have a new ammonia plant to be built at Salt Lake City in the preliminary design stage, but **C. F. Tears, Jr.** said they were not ready to announce the name of their principals.

VIRGINIA

Smith-Douglass have recovered much of their dynamite which we reported last month stolen from their Danville plant. A farmer in the neighborhood reported finding some of it hidden on his premises, and more was discovered hidden not far from the plant.

WASHINGTON

Northland Empire Industries headed by former **J. R. Simplot** executives **E. W. Hansen** and **J. W. Lofquist** have picked up where the Simplot organization left off and decided to build liquid fertilizer blending plants at Craigmont and Lewiston. The Simplot organization had contemplated this program, but dropped it. Craigmont, now building, will turn out 100,000 daily gallons.

AUSTRALIA

Oesterreichische Stickstoffwerke, Linz, will soon be in production with a new sulphuric plant, designed to turn out 40,000 annual tons of sulphuric acid and 5,000 tons of sulphur from a gypsum deposit in the Salzkammergut. They are planning

to rebuild their war-destroyed super-phosphate facilities which in 1938 turned out 40,000 tons.

BRAZIL

Ministry of Agriculture have engaged two Norwegian technicians, **Dr. M. P. T. Fjellanger** and **Dr. T. Simonsen** to study the project of setting up a fertilizer plant, probably at Olinda because of the large phosphate beds there, instead of the Paulo Afonso locations originally proposed.

CANADA

Potash Company of America has formed a wholly-owned Canadian subsidiary to continue the exploratory work in Saskatchewan which has been reported here over a period of the past two years.

ISRAEL

Kabulan Ltd. is seeking \$100,000 additional investment to double its capitalization which will permit expansion of its production program as the only organic fertilizer manufacturer in Israel. It is planning to enter the export market with some of the added product. Established in 1951, Kabulan last year produced over 30,000 cubic yards, and hope to pull this up to 105,000 yards as the result of expansion of the plant at Wadi Falik.

JAPAN

The Japanese Government has authorized shipment of chemical fertilizer into Red China for the first time since the start of the Korean war. The deal is a swap of 8,000 tons

of ammonium sulphate for 62,500 tons of industrial salt.

MEXICO

The City of Oaxaca would like to hear from organizations which can provide information about a process for treating city refuse to convert it into fertilizer. Communicate, preferably in Spanish, with **Jose Monoz**, Jefe del Departamento de Limpieza at Oaxaca.

PAKISTAN

Pakistan Industrial Development Corporation has begun to receive equipment for the fertilizer plant at Daud Khel which will start at 50,000 annual tons and then grow to 100,000. It should be in production by 1955.

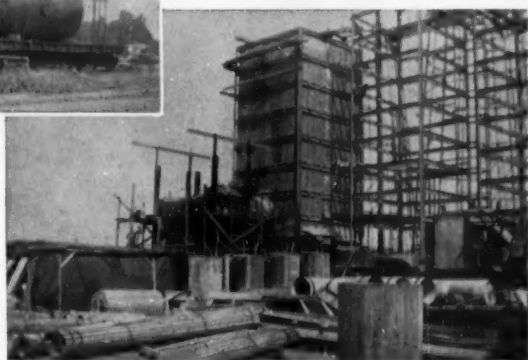
SWEDEN

Swedish Shale Oil Co., with its subsidiary, **Swedish Saltpetre Works** has agreed with the **Cooperative Association** to build at Kvantorp an ammonia plant with a capacity of 22,000 annual tons.

During the recent St. Louis A.A.I. Convention the **Henry Valve Company**, Melrose Park, Illinois, had a remarkable demonstration of the stamina and reliability built into their Ammonia relief valve designed especially for agricultural and industrial chemical use. By actual count this valve cycled a total of 6902 times, showing no variations in the predetermined pressures at which the valve opened and closed. Also introduced at the show was the new 3-color catalog No. 802, describing the entire line of Henry anhydrous ammonia valves and steel fittings for soil fertilization and industrial uses. Copies of which can be obtained by writing the Henry Valve Company, 3215 North Avenue, Melrose Park, Illinois.



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Sandusky, Ohio
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Wilmington, N.C.
Winona, Minn.

Also sales offices in Havana,
Cuba, and San Juan, Puerto Rico

Personals...



Dr. Firman E. Bear, professor of agricultural chemistry and chairman of the Soils Department at the New Jersey Agricultural Experiment Station, Rutgers University, since 1940, will retire on June 30. Dr. Bear will continue as editor-in-chief of Soil Science and maintain an office on the campus.

Frank B. Broughton, is running for alderman in his home town of Shelby, Missouri, where he operates the **Northeast Missouri Fertilizer Co.**

Added to his successful career in fertilizer manufacturing, **A. Carter Myers**, treasurer of **Knoxville Fertilizer Company** at Knoxville, Tenn., has achieved prominence as a sheep breeder. Starting thirty years ago, he began acquiring good rams and ewes at random; through selective breeding purchases and exchanges, he gradually accumulated an enviable array of prize Hampshire stock at Cumberland Mountain Farms, located near Knoxville.

Union Bag and Paper Corporation announces **Paul K. McKinney**, (left) Multiwall sales representative, has been transferred from the company's Houston office to Kansas City. His new territory includes Eastern Kansas, Western Missouri, North-

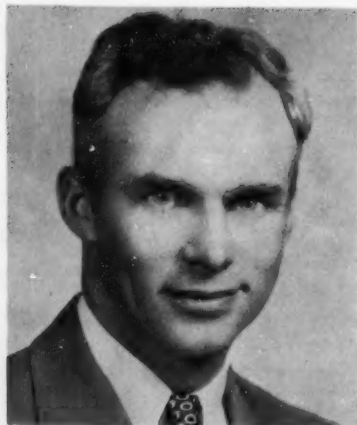


Dr. Russell B. Alderfer, professor of soil technology at Pennsylvania State University, has been appointed **Dr. William E. Bear** as chairman of the Department of Soils at the N. J. Agricultural Experiment Station, July 1, according to Dr. William H. Martin, director.

Last fall the Cumberland Mountain flock made a "clean sweep" through the Midwest state fairs circuit, winning nearly three-fourths of all Blue Ribbon awards made at shows in which they had entered sheep. After displaying at Illinois, Ohio, Indiana and Kentucky fairs, at Nashville and Memphis, Tenn., and at Birmingham, Ala., Carter Myers could boast a record of 72½% of the blue ribbons presented at these judgments.

With show teams consisting of an aged ewe and ram, a yearling ewe and ram, a lamb ewe and ram, and a pen, then a record of this sort is indeed a rare thing.

west Arkansas and the state of Oklahoma. **D. Leon Williams**, (right) formerly of the company's New York office, will be the Multiwall sales representative for the state of Texas. He will headquarter in the Company's Houston office.



The appointment of **Murry C. McJunkin** as development representative was announced by **Robert C. Myers**, director of market development, U. S. Steel Corporation.



The **Raymond Bag Company**, Middletown, Ohio, manufacturers of Multiwall Paper Shipping Sacks, has announced the appointment of **Henry A. Kennington** as General Sales Manager. Prior to joining Raymond, he served as sales manager for one of the industrial divisions of Armour and Company.

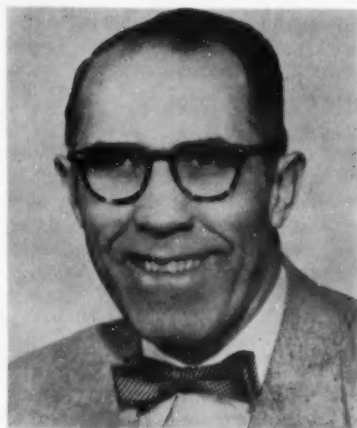
Chase Bag Company has announced the promotion of **J. P. Widlar**, formerly Sales Manager of its Kansas City branch, to the Company's Paper Bag Division. He will work directly with the General Sales Office in Chicago in the sale and promotion of multiwall and consumer size paper bags. It was announced by **W. N. Brock**, Vice President and General Sales Manager.



At present there are about a hundred ewes in the fold at Cumberland Mountain Farms. Many breeders, anxious to improve their lines of stock, have paid substantial prices for prize sheep from the pastures of this widely-known stock farm. Bucks have brought sums ranging as high as \$1,000, while some ewes have earned \$800 price tags.

Although Mr. Myers' schedule and the weather teamed up to prevent our getting any pictures of him with some of his prize sheep at the farm, you may be certain that Cumberland Mountain's pastures could well stand as an example of the wisdom of proper fertilizer use.

Dr. Jean G. Smith has joined the research and development division of **The Davison Chemical Corporation**. She was born and raised in Baltimore and attended Goucher College and The Johns Hopkins University. At Goucher she obtained an A.B. degree in chemistry and at Johns Hopkins an A.M. and Ph.D. in physical chemistry.



Howard R. Lathrope, formerly an extension agronomist with Purdue University, who has joined the Nitrogen Division, Allied Chemical & Dye Corporation to serve as an agronomist in the Midwest, the company announced April 19. Mr. Lathrope is widely known in the Midwest for his work in introducing new methods of better crop production. A proponent of scientific fertilization, Lathrope is credited with improving farming practices and crop yields on a broad scale throughout Indiana. (See page 18)

Dr. Smith comes to Davison from the University where she has been doing post doctorate work as a research fellow.

W. J. Ray, assistant sales manager

of the Indianapolis sales division, **Bemis Bro. Bag Company**, has transferred to the company's general offices in St. Louis. He will be assistant to **S. M. Spencer**, the supervisor of textile bag sales for the Bemis company.

Mr. Ray joined Bemis in 1933 at Indianapolis, and since then has had wide experience in a variety of positions. He was made assistant sales manager at Indianapolis in 1953.

H. W. Dahlberg, Jr. has been appointed assistant to **Howard F. Roderrick**, vice president in charge of **International Minerals & Chemical Corporation's** Phosphate Chemicals division.

Mr. Dahlberg has been a member of International's Research Division since 1945, serving first as a research chemical engineer in Florida. In 1947 he was transferred to Chicago where he served for the next five years as assistant to **Dr. Paul D. V. Manning**, vice president in charge of International's Research Division.

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Magnesia for Agriculture

EMJEO (80/82% Magnesium Sulphate)
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CHEMICALS DEPARTMENT

345 The Merchandise Mart, Chicago 54, Illinois

Most recently Mr. Dahlberg has been research supervisor in charge of the technical economic department and the research library.

Mr. Dahlberg holds a degree in chemical engineering from the University of Minnesota.

* * *

James O'Hear Sanders, Fulton Bag's salesmanager, has been elected president of the Atlanta Civitan Club, of which he has been an active member for many years.

* * *

Diamond Alkali Company has elected **Raymond F. Evans** as chairman of the board and **John A. Sargent** as president, from the positions of president and executive vice-president, respectively.

All 10 present directors were re-elected, and all other officers were renamed to present posts.

Mr. Evans, in the newly-created post as board chairman, will continue to function as chief executive officer of the company and will be

especially concerned with long-range planning and policy making; while Mr. Sargent, as president, will direct the general, day-to-day management of company activities. The executive vice-presidency, vacated by Mr. Sargent, will not be filled at this time.

* * *

Appointment of **Joseph G. Knapp** as administrator of the Farmer Cooperative Service in the **U. S. Department of Agriculture**, was announced April 13 by Secretary of Agriculture **Ezra Taft Benson**.

Mr. Knapp has been serving as acting administrator since the Farmer Cooperative Service was set up on December 4, 1953 as part of the Federal-States Relations Group under J. Earl Coke, Assistant Secretary of Agriculture. The Service does research, educational, and service work for the more than 10,000 farmer cooperatives that now serve some 3 million farmers in the United States.

Herschel D. Newsom, Master of the **National Grange**, is being "shot"

nearly every day. The popular Grange Master, it seems, is receiving a series of injections against all sorts of diseases and tropical maladies preparatory to his trip to Kenya, Africa, where he will be attending the annual meeting of the International Federation of Agricultural Producers.

* * *

Dr. A. J. Dirksen has been appointed director of sales development for **American Potash & Chemical Corporation**, according to an announcement by **Peter Colefax**, president of the company. He joined them early in 1953, and has been acting as eastern representative of the company's sales development department.

* * *

John A. Miller has been appointed sales Engineer for **Baughman Mfg. Co.**, Jerseyville, Ill., and will handle the complete line of Baughman Conveyors, Bulk Transport Bodies and Bulk Feed Bodies. His offices will be located at 705 University Ave., S. W., Atlanta, Ga.

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SULPHURIC ACID

Ground Cotton Bur Ash, 38/42% K₂O Potash.

Nitrogenous Materials

Castor Pomace

Urea, 45½% and 46% Nitrogen

Calcium Ammonium Nitrate, 20.5% Nitrogen

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Bags—Paper and Textile

Ammoniated Base and Superphosphate

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(42-44% Magnesium Carbonate)

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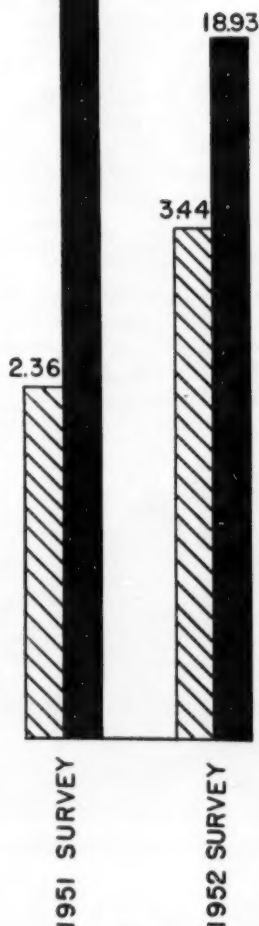
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Safety

COMPARISON
OF RESULTS
OF
1951 & 1952
SURVEYS



The Fertilizer Section of the National Safety Council is now in its second year of operation. This Accident Experience Survey is the second to be made of the Fertilizer Industry.

It is much too early to expect the data collected in these surveys to show significant trends.

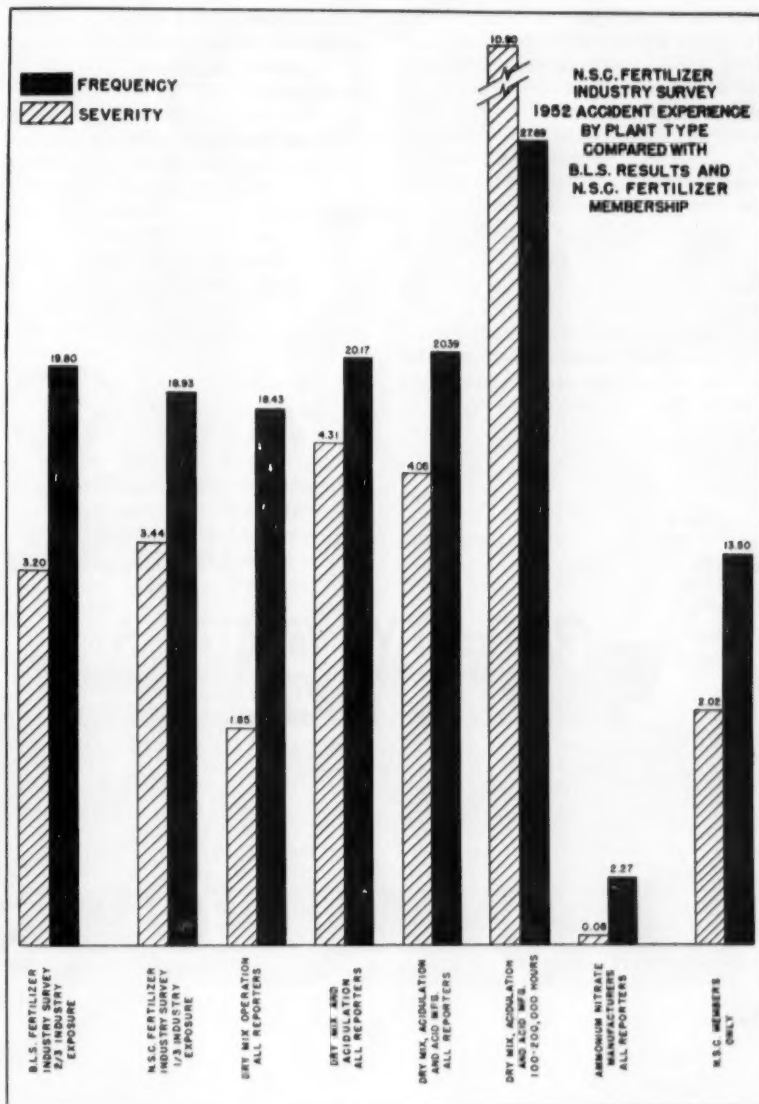
However, the information requested in these two surveys and the surveys to follow in the next few years should enable the Fertilizer Industry to shape its safety activities to the needs of the industry.

The Section needs a wide base upon which to plan its activities. An increased number of questionnaires, completed and returned, will enable the Fertilizer Section to determine the needs of the industry with more accuracy.

In the late summer of 1953, the Statistics Committee of the National Safety Council's Fertilizer Section sent a questionnaire to some 1300 fertilizer manufacturing concerns in the United States and Canada requesting information on their 1952 accident experience. Questionnaires were returned from

211 operating units and of these 174 were usable. Although the number of usable returns was the same as for the 1951 survey, the total response was greater in point of numbers as well as percentage-wise. For a voluntary effort these results are particularly gratifying.

Altogether the usable question-

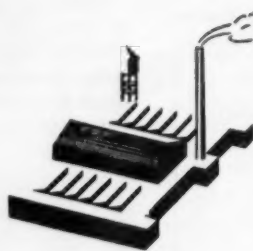


1952 INJURY RATES, MEMBERS, NATIONAL SAFETY COUNCIL

FREQUENCY RATE

DISABLING INJURIES
PER 1,000,000 MAN-HOURS

COMMUNICATIONS	1.61
ELECTRICAL EQUIPMENT	3.38
AUTOMOBILE	3.62
STEEL	4.07
AIRCRAFT MANUFACTURING	4.21
CEMENT	4.54
TOBACCO	5.00
CHEMICAL	5.10
SHIPBUILDING	5.30
RUBBER	5.96
MISC. MANUFACTURING	6.10
RAILROAD EQUIPMENT	6.39
TEXTILE	6.41
SHEET METAL	6.50
STORAGE & WAREHOUSING	6.54
GLASS	7.66
PRINTING & PUBLISHING	8.16
ALL INDUSTRIES	8.40
MACHINERY	8.50
IRON & STEEL PRODUCTS	8.89
WHOLESALE & RETAIL TRADE	9.44
PETROLEUM	9.67
NON-FERROUS METALS & PROD.	9.95
PULP & PAPER	10.06
MEAT PACKING	10.12
ELECTRIC UTILITIES	11.06
LEATHER	12.30
FERTILIZER	13.50
SERVICE	13.75
FOUNDRY	13.93
CLAY PRODUCTS	14.23
FOOD	14.27
GAS UTILITIES	14.40
TRANSPORT	14.55
AIR TRANSPORT	15.31
WOOD PRODUCTS	16.27
CONSTRUCTION	17.34
QUARRY	17.87
MARINE TRANSPORTATION	21.67
MINING, OTHER THAN COAL	24.58
MINING, COAL	33.00
LUMBER	35.48



* Figures in parentheses show average time charge (in days) per case

• All rates compiled in accordance with the American Standard Method of Compiling Industrial Injury Rates, Code Z16.1-1945.

SEVERITY RATE

TIME CHARGE (DAYS)
PER 1,000 MAN-HOURS

COMMUNICATIONS	(62) .10
WHOLESALE & RETAIL TRADE	(15) .14
TOBACCO	(46) .23
SERVICE	(23) .32
ELECTRICAL EQUIPMENT	(97) .33
AIRCRAFT MANUFACTURING	(81) .34
AUTOMOBILE	(97) .35
MISC. MANUFACTURING	(64) .39
PRINTING & PUBLISHING	(48) .39
RUBBER	(71) .42
RAILROAD EQUIPMENT	(70) .45
TEXTILE	(79) .51
CHEMICAL	(108) .55
MACHINERY	(65) .55
GLASS	(73) .56
STORAGE & WAREHOUSING	(101) .66
SHEET METAL	(105) .68
MEAT PACKING	(67) .68
CLAY PRODUCTS	(52) .73
IRON & STEEL PRODUCTS	(87) .77
LEATHER	(65) .80
GAS UTILITIES	(57) .81
SHIPBUILDING	(55) .82
AIR TRANSPORT	(56) .86
TRANSPORT	(61) .88
ALL INDUSTRIES	(105) .88
WOOD PRODUCTS	(56) .90
PULP & PAPER	(97) .98
FOOD	(71) 1.01
PETROLEUM	(108) 1.04
FOUNDRY	(75) 1.05
STEEL	(284) 1.16
NON-FERROUS METALS & PROD.	(125) 1.24
ELECTRIC UTILITIES	(143) 1.66
FERTILIZER	(150) 2.02
MARINE TRANSPORTATION	(96) 2.07
CEMENT	(467) 2.29
CONSTRUCTION	(143) 2.48
LUMBER	(95) 3.36
MINING, OTHER THAN COAL	(164) 4.02
QUARRY	(233) 4.17
MINING, COAL	(188) 6.19

naires returned represent something more than 1/2 of the total industry exposure. According to the Bureau of Labor Statistics, the fertilizer industry worked approximately 74,000,000 hours in 1952. The questionnaires returned in the Fertilizer Section survey represent 24,000,000 hours manufacturing exposure with an additional 11,000,000 hours as potash and phosphate mining exposures.

The Bureau of Labor Statistics survey of the Fertilizer Industry's 1952 accident experience covers an exposure of 52,000,000 manhours, 2/3 of the industry, and shows a frequency rate for the industry of 19.8 lost time accidents per million man-hours worked and a severity rate of 3.2 days lost per thousand hours worked. The fertilizer section's survey represents an industry exposure of 24,000,000 hours, about 1/2 of the industry total, and shows a frequency rate of 18.93 lost time accidents per million man-hours worked and a severity rate of 3.44 days lost per thousand hours worked.

The information available from the United States Bureau of Labor Statistics on its survey of the 1952 industry accident experience is limited. When the BLS figures are grouped according to plant size they are of the same order as those collected in the National Safety Council survey, with two exceptions: in the size group working from 0 to 40,000 hours per year, the BLS figures report a total of 127 manufacturing plants and for this group a frequency rate of 25.6. The National Safety Council's figures in the same size group give

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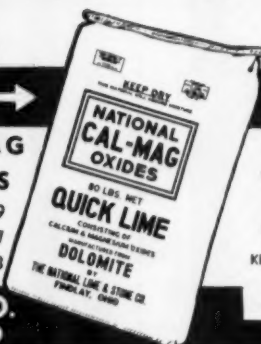
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CaO 58.07
TNP 203.88



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KILN DRIED RAW
DOLOMITE
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... 39% Magnesium Carbonate

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a frequency rate of 19.79. In the next size group—40,000 to 100,000 hours per year, the Bureau of Labor Statistics gives a frequency rate of 28.4 and a frequency of 20.32 for the National Safety Council survey figures. Otherwise the figures from the two surveys are comparable. The differences in the first two size groups probably can be explained on the basis of different samples.

It is probably valid to infer that the frequency and severity patterns of the industry by size of plant and by type of plant operation presented in the following summations are applicable to the entire industry. In any case, these are the most complete figures on the accident experience pattern of the industry available for the year 1952.

When the data collected in the Fertilizer Survey are arranged according to plant size without regard for the type of operation, the frequency and severity rates are as follows: Plants which work from 0 to 40,000 hours per year, from 40,000 to 100,000 hours and from 200,000 to 500,000 hours have frequency rates of the same order,

about 20 lost time accidents per million man-hours worked.

Attitudes And Safety

The Director of the Traffic Division of the National Safety Council has drawn up a list of attitudes which are related to accidents of all causes.

The list includes the following: (1) Selfishness—the "me first" attitude responsible for much lack of consideration for others; (2) Self-importance—the idea that "I'm too big for rules—they apply only to the other guy"; (3) Overconfidence—"I'm good—I don't have to be careful—I know it all;" (4) Chance-taking—the "live dangerously" concept, sometimes involving great faith in luck—"It can't happen to me;" (5) Fatalistic attitudes — you go when your number is up, and what you do doesn't make any difference; (6) Hostility—a constant unfocused feeling of anger towards others, resulting in an aggressive attitude; (7) Attitude of inferiority—"I won't be pushed around;" (8) Competitiveness—trying to get ahead—to beat the other fellow; (9) Unconscious self-destruction—

an attitude frequently noted by psychologists—a need to injure yourself; (10) Exhibitionism—showing off; (11) Pleasure in destruction — a personality maladjustment in which pleasure is derived from destroying things; (12) Transfer of guilt-creating situations in which blame can be placed on others, thus relieving feelings of guilt on the part of the instigator.

Check off the attitudes listed above that do not apply to you. If you have an accident prone worker in your organization, it might help to know the attitude observed by such a worker. In this way you may be able to solve some of your problems.

Southern Fertilizer And Chemical Given Safety Council Award

The National Safety Council has presented its certificate of commendation for the safety record of Southern Fertilizer and Chemical Co. at Savannah, Georgia for its injury-free period of 254,485 man hours between November 18, 1952 and December 31, 1953.

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Smith-Douglass Plants Get Safety Awards

Because Vernon S. Gornto is so active in the Fertilizer Section of the National Safety Council, it is interesting to note how his own plants fare in safety records. Here is a bulletin recently issued by Smith-Douglass which tells that story:

Four Smith-Douglass plants received recognition for outstanding safety records from Ned H. Dearborn, President, National Safety Council.

The Smith-Douglass Company, Incorporated, Fertilizer Plant at Danville, Virginia and the South Norfolk plant of Smith-Douglass, a Division of Smith-Douglass Company, Inc., received "Certificate of Commendation" from the National Safety Council, signed by Ned H. Dearborn, President. The Danville, Virginia plant has worked 409,121 manhours since its last disabling injury on January 5, 1950. The Smith-Rowland plant at South Norfolk has worked 331,101 manhours since its last disabling injury on December 31, 1950.

The Smith-Douglass plant at Albert Lea, Minnesota received a special letter of commendation from President Dearborn for having worked the entire year of 1953 without a disabling injury. The last industrial accident at the Albert Lea plant, which involved any lost time was on January 7, 1952. This plant has now worked 175,944 manhours without a disabling accident. The Selbyville, Delaware, Smith-Rowland plant has not had a disabling injury since it commenced production in January, 1952. This plant has now worked a total of 133,701 manhours.

Percy C. Searce is manager and J. H. Rimmer is superintendent of the Danville, Virginia plant. W. E. Lee is superintendent of the Smith-Rowland plant at South Norfolk. R. E. Hargrove is superintendent of the Selbyville, Delaware plant. W. W. Johnson is General Manager of Smith-Rowland Company. K. L. Rue is Assistant General Manager of Smith-Rowland Company. M. W. Mawhinney is manager of the Albert Lea plant, and W. V. Waisanen is superintendent. V. S. Gornto is Safety Director for all Smith-Douglass

operations. Mr. Gornto is also General Chairman of the Fertilizer Section of the National Safety Council.

Coronet Has Safety Rule Book

Not so long ago we discussed in these pages the Employee Safety Booklet, published for Smith-Douglass plants. Now Vernon Gornto has completed a Safety Rule Book for personnel of the Coronet Phosphate Company, a Smith-Douglass division. This is quite different from the previous book, being more detailed and not being illustrated by cartoons as was the other. It was worked out in close cooperation with the labor union which has jurisdiction over that plant, the International Chemical Workers Union, Local 37, AFofL.

"And the end is that the workman shall live to enjoy the fruits of his labors..." the foreword begins. And attached to the last page is a little slip, to be signed and returned by the worker to the office, signifying that he has received and read his personal copy.

Mr. Gornto says he will be glad



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to supply copies to interested persons on request. Write him at the Safety Department, Smith-Douglass Company, Inc., Norfolk 1, Virginia. He says that as a result of our men-

tion of the S-D booklet, they have received over a hundred requests for copies . . . which speaks well of the will to be safe which is permeating our industry.



Here's how W. A. "Bill" Stone, Wilson & Toomer Jacksonville plant manager points up safety in the plant. On blackboards he shows that death had taken a 3-day holiday and gone fishing. Then all of a sudden there were 3 accidents in a row . . . and fishing was over.

NAC APPROVES MILLER BILL

New legislation to further protect the consumer from harmful residues of farm chemicals is endorsed by the industry, according to **Paul Mayfield**, president of the National Agricultural Chemicals Association, in the opening address of the three-day meeting of the association at The Shamrock, Houston, Texas. Mayfield is general manager, Naval Stores Department, **Hercules Powder Company**.

The agricultural chemical credit situation was discussed by **J. A. Walker**, credit manager, **Standard Oil Company of California**. **Dr. Fred C. Bishop**, Coordinator of the Pink Bollworm Research Center at Brownsville, Texas, pointed out the value of pesticides in raising the standards of living and health. The next morning the association members heard a report by the association executive secretary, **Lea S. Hitchner**. Other speakers of the day included **Dr. Herbert L. Haller** of the U. S. Department of Agriculture and **J. Clyde Wilson**, president of the

Arizona Cotton Growers Association.

The final session of the association opened with an address by **John D. Conner**, the association counsel, on the responsibility of research and production. This was followed by **Charles S. Maddock** of **Hercules Powder Company** on the responsibility of labeling, advertising and marketing. **Wilson T. Seney**, associate of **McKinsey and Company**, New York City, presented to the group some cost accounting procedures and **Joseph E. Burger**, sales manager of the **Corneli Seed Company**, wound up the meeting with an address on "How to Get Better."

Chemical insect control combined with natural biological control may eventually provide the best solution to the cotton pest problem in the western section of the Cotton Belt.

Speaking April 14 to the third annual **Western Cotton Production Conference** at Hotel Westward Ho, Phoenix, Ariz., **Robert van den**

OBITUARIES

E. M. Crowther, Rothamstead Experiment Station, England, died suddenly March 17. He has headed the chemistry department at the Station for several years and was deputy director.

Grover C. Dunford, 65, founder in 1924 of Inland Fertilizer Co., Los Angeles, died suddenly April 9, when it was thought he was convalescing from a long illness.

Guy W. Talbert, retired vice-president of Allied Chemical & Dye died March 24 at his home in Ensley, Alabama.

Bosch, University of California, emphasized the importance of protecting beneficial insects from harm.

The effect of pesticides on flavor will be examined at the National Canner's Association Convention June 27-July 1. A feature of this program will be a report on flavor evaluations of canned foods treated with chemical pesticides. These studies were a cooperative effort on the part of several organizations to attain a standardized procedure for such evaluations.

A leaflet outlining the characteristics and use of **Eston Tetron-50** insecticide spray which is non-residual and which may be used safely up to within 24 hours of picking or harvesting has been made available by **Eston Chemicals** division of **American Potash & Chemical Corporation**, and will be mailed free to those addressing a request to the company at 3100 East 26th Street, Los Angeles 23, California.

CLASSIFIED ADVERTISING

For Sale, Exchange and Wanted Advertisements, same type now used, EIGHT CENTS a word for one insertion; TWELVE CENTS a word for two insertions; FIFTEEN CENTS a word for three insertions, and FOUR CENTS a word for each insertion more than three; ADVERTISEMENTS FOR THIS COLUMN MUST BE PAID IN ADVANCE.

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Anhydrous Ammonia First Aid Kit

Ammonia burns led to development of a special first aid kit for treatment of victims.

Mine Safety Appliances Company, Pittsburgh, Pa., is announcing its "Anhydrous Ammonia First Aid Kit" and a spokesman for the firm said decision to develop it was based on numerous requests from farm users of anhydrous ammonia.

The new kit contains necessary materials for treatments, including gauze bandages and pads, antiseptic swabs, eye dressings, bandage scissors, eye cup, plastic bottles of acetic acid, sodium thiosulphate and boric acid solutions and a special instruction and contents sheet.

Details are available on request, without obligation, from Mine Safety Appliances Company, 201 North Braddock Avenue, Pittsburgh 8, Pa.



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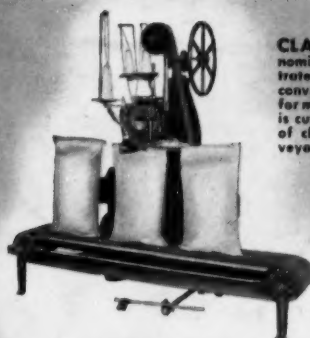
Ask for recommendations. **UNION SPECIAL MACHINE CO.**, 412 North Franklin St., Chicago 10, Illinois.

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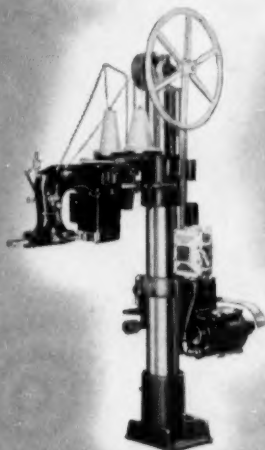
BAG CLOSING MACHINES



CLASS 21800 (left) for fast, economical closing of paper bags. Illustrated is Style 21800 H with 5 ft. conveyor and 80600 H sewing head for making tape bound closure. Tape is cut off automatically at each end of closure. Sewing head and conveyor adjustable vertically.



CLASS 20500 (above) machines are heavy duty, high production units for closing medium and heavy weight bags. Available with power-driven horizontal conveyor, inclined conveyor, or both; or with conveyor transmission unit only, for plant production line.



STYLE 20100 H (left), is a heavy duty, high production column type machine designed for use with plant conveyor systems. Sewing head is pedal controlled.

DUPLEX MACHINES (right) are designed for closing double bags. The first sewing head closes the inner bag; the second closes either the outer bag alone, or both bags together for extra safety. Also recommended for single closures where continuous operation is a must — operator can instantly switch to either head.

